TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

MARCH 15, 1961
Price 50c

"That Original-Cost Theory"
See page 37

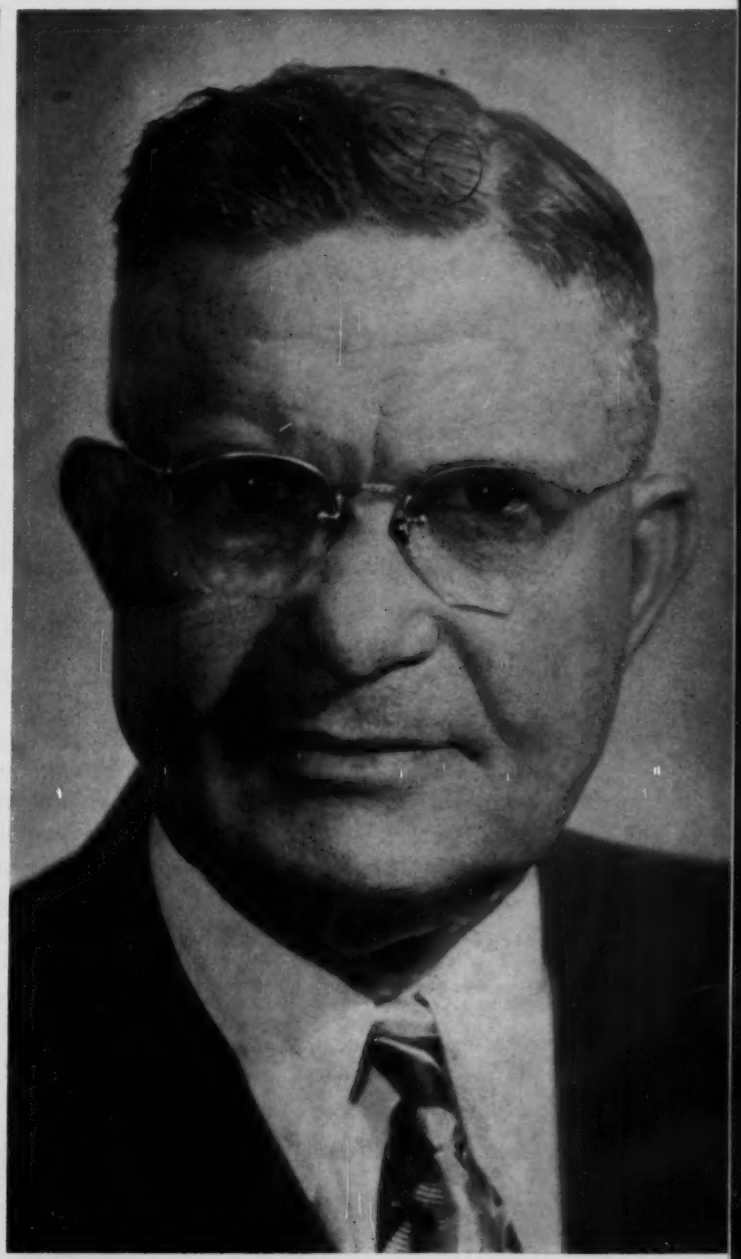
Regulation and Free Enterprise
See page 41

New Approach To Economical Loading
See page 43

How Much Can A Guy Anchor Hold?
See page 45

Publicity For Your Open House
See page 54

Industry Newsletter
See page 9



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TELEPHONE ENGINEER & MANAGEMENT

Published on the 1st and 15th of each month by

TELEPHONE ENGINEER PUBLISHING CORP.
7720 Sheridan Road, Chicago 26, Ill.

Telephone
ROgers Park 4-3040
Chicago

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Member of
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Average Total Qualified Circulation
For 12-Month Period Ending June 1960,
13,817

TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

VOL. 65 NO. 6 MARCH 15, 1961

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THE TE&M FRONT COVER

Last month DANIEL H. McNULTY (shown on front cover) and the late Dorothy McNulty (see story on page 9) announced that they had transferred partial stock ownership in Telephone Repair & Supply Co., Chicago, to Vice President and General Manager Vincent D. Halloran, and five veteran employes of the company. (For complete story see page 76.)

Volume 65, No. 6. Published on the 1st and 15th of each month by TELEPHONE ENGINEER PUBLISHING CORP., 7720 Sheridan Rd., Chicago 26, Ill. Office of publication 600 S. 7th St., Rochelle, Ill. Subscriptions, U. S. and Possessions, $4.00 per year; Canada, $4.50; in all other countries, $6.50. Single Copies, U. S. A., 50 cents. Entered as Second Class matter at the post office at Rochelle, Ill. under the act of March 3, 1879. Copyright 1961 by Telephone Engineer Publishing Corp., 7720 N. Sheridan Rd., Chicago 26, Ill.
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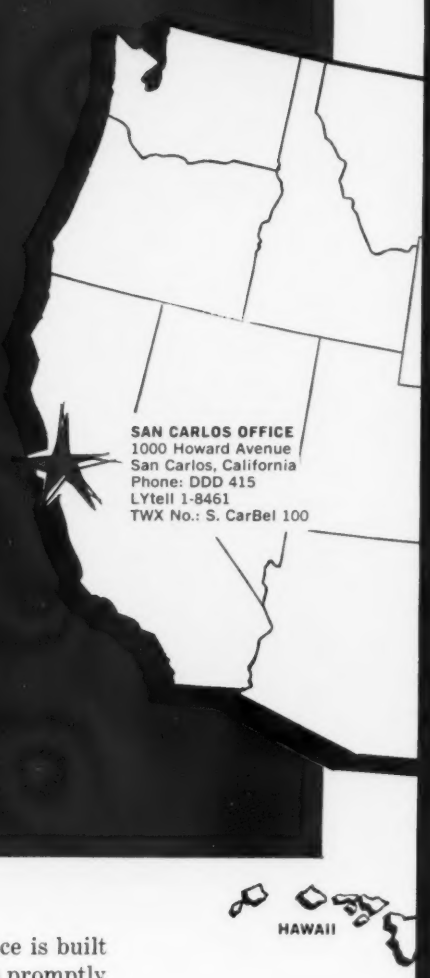
Faster service from Lenkurt Electric through 6 new locations!



Lenkurt Electric's new telecommunication customer service is built around six regional offices, strategically located to serve you promptly and on short notice.

Each office is staffed with Lenkurt people, trained in Lenkurt traditions, and fully capable of resolving your problems on their own.

Whether you need quick delivery, fast service or engineering consultation, the Lenkurt people in your area can and will serve you with efficiency and dispatch.

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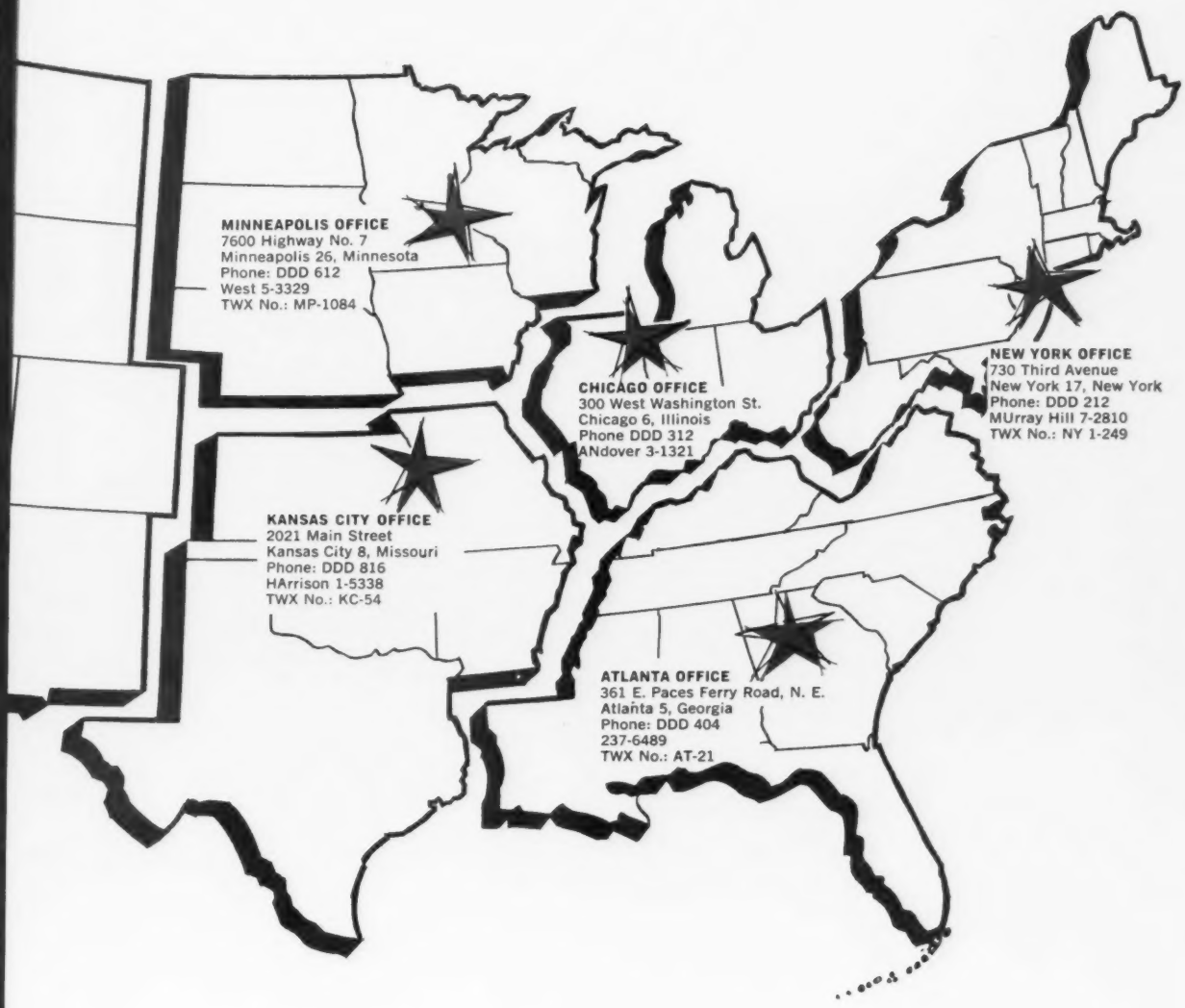

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Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

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- Intertoll dialing with the latest supervisory standards
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- Economical expansion with simple jack-in equipment
- Easy adaptation to automatic toll ticketing—and Strowger ticketing equipment works directly into accounting machines without converters
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- Either frequency-per-group or frequency-per-terminal, with terminal-per-station operation
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- Remote testing of unattended offices
- Fully automatic alarm systems within office and at remote points
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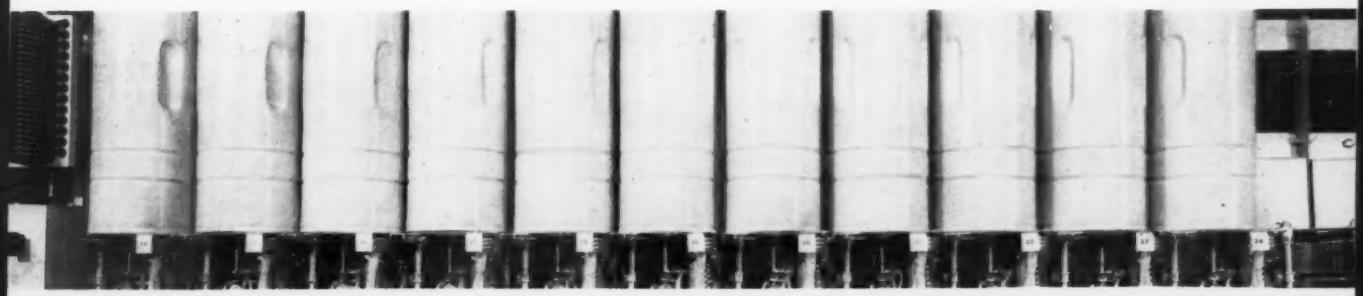

the best decision, Harry—

Strowger will meet your future needs!"

Wayne Leonard* is a funny guy. He insists that he doesn't sell dial equipment. Wayne says that he sells the solution to future communications needs. And if you think that's odd, just listen to the way that he sells our switching equipment...

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**District Manager, North Central District, Automatic Electric Sales Corporation*

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Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

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New Kohler Engine and Electric Plant Building

Capacity to meet growing sales

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MODEL K161
4-cycle
Short stroke
Air-cooled
Sizes: 4 to 24 H.P.

ELECTRIC PLANTS
MODEL 5RM61
Sizes: 500 watts to
115 KW gasoline and diesel

Our customers' requirements will be met better than ever by the 12 acre new factory devoted entirely to the manufacture of engines and electric plants at Kohler, Wisconsin.

The building provides nearly three times the space formerly available, and allows for further expansion. Straight-line, one-floor production and newest equipment mean increased production, prompt deliveries.

Kohler engines, manufactured since 1920, are being increasingly specified for equipment used in agriculture, construction, industry and recreation. Kohler electric plants, known the world over for reliability, provide efficient electric power for a wide variety of sole supply, portable, automatic stand-by and marine uses.

Highest standards of service are assured by a nation-wide distributor and dealer organization.

The new factory is part of a continuing plan of expansion and diversification by Kohler Co.

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ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS
ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

coming

CONVENTIONS

IOWA Tel. Assoc., Savery Hotel, Des Moines, Iowa, March 23-24, 1961.

INTERNATIONAL POLYTECHNIC SYMPOSIA, Auditorium of the Engineering Societies, New York City, April 4-6, 1961.

NEBRASKA Tel. Assoc.,Cornhusker Hotel, Lincoln, Nebraska, April 5-6, 1961.

OHIO Tel. Assoc., Deshler Hilton Hotel, Columbus, Ohio, April 18-19, 1961.

WISCONSIN Tel. Assoc., Plankinton House, Milwaukee, Wisc., May 2-3, 1961.

INDIANA Tel. Assoc., Claypool Hotel, Indianapolis, Ind., May 10-11, 1961.

ILLINOIS Tel. Assoc., Pere Marquette Hotel, Peoria, Ill., May 17-19, 1961.

KANSAS-MISSOURI Tel. Association, Continental Hotel, Kansas City, Mo., May 22-23, 1961.

PENNSYLVANIA Tel. Assoc., Pocono Manor Inn, Pocono Manor, Pa., June 5-7, 1961.

WASHINGTON-OREGON Tel. Assoc., Empress Hotel, Victoria, B. C., June 15-16, 1961.

NEW YORK Tel. Assoc., Scaroon Manor, Schroon Lake, N. Y., June 19-21, 1961.

CALIFORNIA Tel. Assoc., Hawaiian Village, Honolulu, Hawaii, June 26-30, 1961.

ALASKA Tel. Assoc., Hotel Not Announced, Palmer, Alaska, Aug. 21-23, 1961.

MICHIGAN Tel. Assoc., Pantlind Hotel, Grand Rapids, Mich., Sept. 19-21, 1961.

FLORIDA Tel. Assoc., The Carillon Hotel, Miami Beach, Fla., Nov. 26-28, 1961.

Series HLE

Revolving Aerial Ladders

WITH ELECTRIC-POWERED HYDRAULIC ELEVATION

Safe, easy operation of the HLE Ladder inspires confidence . . . enabling the user to work comfortably and thereby complete more overhead jobs every day.

Equally important, simplified design of the ladder reduces initial cost as well as installation and maintenance expense—to a minimum that fits any operating budget.

Elevation, controlled from ladder base or working platform, is actuated by a hydraulic cylinder powered by an electric motor-driven pump. Motor is powered by the truck battery . . . with no appreciable effect on battery life. Manual extension and rotation is fast and easy. From horizontal to nearly-vertical elevation, at any length and at any point in a 360-degree rotating arc, the ladder locks in position to which it is moved.

Literature containing complete construction and operation details on 27′, 31′, 35′ and 40′ Series HLE Ladders is yours—with price information—for the asking.

Another reason why
UTILITIES EXPECT MORE FROM

POWERS American

UTILITY BODIES AND EQUIPMENT

SERIES 5510

The range and ease of operation of this manually-operated unit, coupled with its safety, durability and trouble-free service, has made it a favorite with utility users everywhere.

Available in ground-to-platform heights of 23½′, 26½′ and 30½′ for installation on a body that fits your exact requirements.

SERIES HL

Fully-powered elevation, extension and rotation puts the Series HL Ladder in a class by itself when it comes to saving time on overhead jobs. Safe, efficient, durable . . . in heights of 27′, 31′, 35′ and 40′. Can be furnished on a body designed to fit your specific job needs.

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CAROLINA TELEPHONE AND TELEGRAPH COMPANY uses Collins microwave and carrier.

Collins' system, recently installed for this company, is a combination microwave-cable facility. It provides a 32-mile microwave path from Rocky Mount, North Carolina, to Aurelian Springs, then via cable to a terminal located several miles away. The North Carolina company also has placed an order for additional Collins equipment to further expand its facilities. For information on a microwave-carrier system tailored to your individual needs, contact Collins Radio Company, Texas Division Sales, 1930 Hi-Line Drive, Dallas 7, Texas.

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NEWSLETTER
TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

Dear Sir: March 15, 1961

MRS. DOROTHY McNULTY DIES . . . As TE&M went to press, word was received of the death of Mrs. Dorothy McNulty, wife of Daniel H. McNulty, pres., Telephone Repair & Supply Co., Chicago. Mrs. McNulty died at Tucson, Ariz., on Mar. 3. Her telephone career started in 1937, & at time of her death she was sec.-treas. of Telephone Repair & Supply Co. Known throughout telephone industry, Mrs. McNulty attended many national & state telephone conventions with her husband & was member of Independent Telephone Pioneer Association.

Mr. and Mrs. McNulty had recently completed arrangements for sharing ownership of Telephone Repair with veteran employes who had contributed to company's growth & success. (See front cover story, page one, and news story, page 76). In addition to her husband, Mrs. McNulty is survived by three sisters, Mrs. George Koehler, Mrs. Jerry McMurry, and Mrs. Adolph Spitz, and one brother, Eric Jahn. Funeral services were held in Chicago on Mar. 8.

MORE EMPHASIS TO BE PLACED ON LOANS TO CO-OPS, BAKER TELLS NTCA . . . More emphasis will be placed by Kennedy administration on Rural Electrification Administration loans to cooperatives than has been case in recent past, John A. Baker, Director of Agricultural Credit Services, told annual convention of National Telephone Cooperative Association at Dallas, Tex., last month.

Baker also declared that REA will "look into" any discrepancies found in REA telephone loan program, apparently referring to NTCA views that some REA loans have gone to speculators & have resulted in substantial individual profits, rather than fulfilling primary purpose of expanding & improving rural telephone service.

More than 400 persons attended convention. James L. Bass, Carthage, Tenn., attorney & businessman, was elected pres. of association for coming year. Leo Forrest, who manages telephone & electrification cooperative at Hereford, Tex., was named vice pres.

CWA MEMBERS DUE FOR TAX REFUNDS IN CASE INVOLVING STRIKE BENEFITS . . . Internal Revenue Service decision not to contest suit by member of Communications Workers of America for refund of income taxes paid on strike benefits will result in more than 1500 persons benefitting from refunds of possibly several hundred thousand dollars, it was reported last month.

Test case involved member of CWA local in Phoenix, Ariz., where union carried on strike against Mountain States Tel. & Tel. Co. for seven-month period in 1956. IRS had decided that all strikers were required to pay income taxes on strike benefits, but this position will now be reversed by decision not to contest suit brought by CWA member in Phoenix.

It was estimated by union that upwards of 100 members in Phoenix are entitled to refunds. In addition, case sets precedent for handling similar cases in two

Use *Preformed* TRADEMARK GRITTED ARMOR RODS (Adapters)

the new way to install service drops and splicing cases. Protective armor increases diameter of messenger to accommodate D Span Clamps or splice case attachments.

Money Saving For Rural

Use *Preformed* TRADEMARK ALUMINUM ALLOY ARMOR RODS

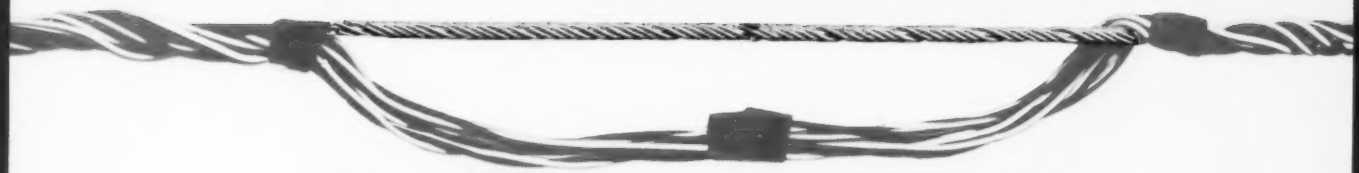
with one-bolt clamp to avoid expensive J-Hook installations. Armor Rods protect insulated messenger from clamping stresses and increase holding power.

You can look up to ***Preformed*** TRADEMARK

FOR ECONOMIC AND EFFICIENT B RURAL CONSTRUCTION

The products in this advertisement are manufactured under one or more of the following U.S. Patents Nos.: 2,761,273;2,609,653;other patents pending.

Preformed communications products are distributed by leading Local and National Telephone Suppliers



Use *Preformed* TRADEMARK flexible SPLICES

the fast, inexpensive method of joining the stripped messenger by hand without tools. Flexible Splices "breathe" and flex with the messenger; and eliminate stress points.

Attachments Distribution Wire

Use *Preformed* DEAD-ENDS

the most economical method of dead-ending the stripped messenger at any point WITHOUT CUTTING THE MESSENGER WIRE. Preformed Dead-Ends eliminate stress points which cause fatigue failure of the line. Easy hand application without tools. Can be reused.

PREFORMED LINE PRODUCTS COMPANY

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(Concluded from page 9)

other locations: the Portsmouth, Ohio, area, where CWA struck against General Tel. Co. of Ohio, & at North Carolina radio shops of Western Electric Co., site of another work stoppage.

TRAFFIC 'SUPERVISORS' IN MT. STATES' MISSOULA OFFICE EXCLUDED BY NLRB . . . National Labor Relations Board in order issued Feb. 20, found that traffic "Supervisors" at Missoula, Mont., office of Mountain States Tel. & Tel. Co. "are supervisors within the meaning of the (National Labor Relations) Act & should be excluded from the previously certified" bargaining unit represented by the International Brotherhood of Electrical Workers.

In other recent cases, NLRB found that employes classified as "supervisors" at other Montana offices of Mountain States company should be excluded. Board said that while duties of affected employes in Missoula differ slightly from those of similarly classified employes at the other Montana offices, they "are not so materially distinguishable as to warrant a different determination of supervisory status."

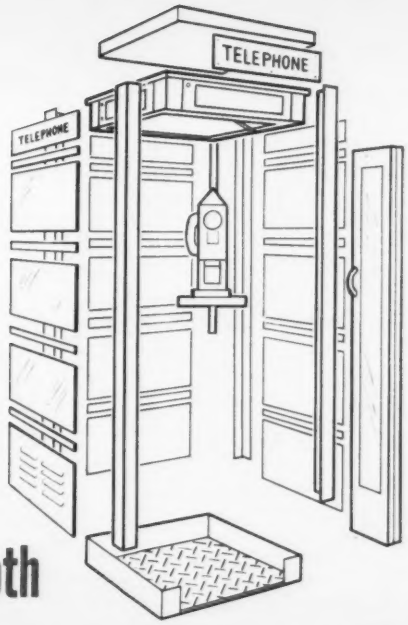
GENERAL OF CALIF. TO SPEND $257,000,000 ON CONSTRUCTION IN 5 YEARS . . . General Telephone Co. of Calif. will spend some $257,000,000 during next five years on its expansion & improvement program, Pres. L. E. Lattin has announced. This year's construction budget amounts to $53,000,000.

Lattin pointed out that company's total investment in telephone plant currently amounts to $484,832,000. Five years ago, total was $219,000,000, while in 1950 figure was slightly more than $95,000,000. Another indication of growth & increasing costs of labor and materials, Lattin said, is fact that total investment per telephone is now $419, compared to $214 in 1950, and $179 in 1940.

ROCHESTER (N. Y.) TEL. CORP. PLANS ONE-FOR-FIVE COMMON STOCK OFFER . . . Proceeds from planned sale of common stock, to be offered to shareowners on basis of one new share for each five now held, will be applied toward repayment of bank loans used for its construction program, Rochester (N. Y.) Tel. Corp. has advised Securities & Exchange Commission in registration statement filed last month. Issue will total 273,437 shares, with subscription price to be supplied later by amendment. Group of underwriters headed by the First Boston Corp. will buy any unsubscribed shares at offering price, & offer such shares for public sale, it was explained. Company's construction program totaled $15,219,000 in 1960, & is expected to be at $14,600,000 level this year. Bank loans are expected to aggregate about $6,000,000 at time of the offering. Rochester company's board of directors last month declared a dividend of 25 cents per share on common stock, $1.25 per share on cumulative preferred stock, 5% series, and $1.41¼ on 5.65% series. All dividends are payable Apr. 1 to stockholders of record on Mar. 15.

General Tel. Co. of Florida registered issue of 400,000 shares of $25 par cumulative preferred stock, to be offered for public sale at $25 per share through underwriting group headed by Paine, Webber, Jackson & Curtis. Net proceeds from stock sale will be applied to payment of bank loans incurred for 1960 and 1961 construction. As of Feb., 1961, company had about $11,500,000 of such advances.

Registration of 465,000 shares of common stock was filed by Inter-Mountain Telephone Co. Company proposes to offer stock to existing shareholders of record Mar. 17, at rate of one new share for each three held. It is expected that net proceeds of stock sale will be applied to payment of amounts owed to banks



SHERRON phone booth STANDARDIZATION

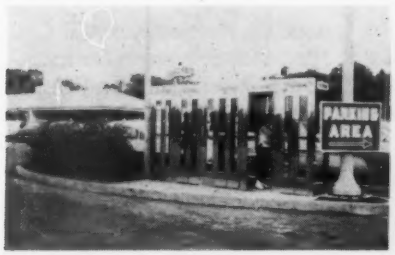
SERVES TELEPHONE COMPANIES' FIELD SERVICE PROGRAMS

Field repair is now an established program of more and more telephone companies... thanks to Sherron phone booth standardization.

The simple substitution of one Sherron part for another makes any repair an on-the-spot job. Top to bottom, from corner posts to panels, every element of Sherron steel booths is readily interchangeable.

The above sketch of a disassembled Sherron steel booth shows how parts may be replaced, anywhere, any time. (And replacement parts are always available from Sherron stock).

No need to haul the booth back to the shop with resultant loss of paystation revenue. Avoidable costs and delays are eliminated, insuring more efficient, more effective field service programs.



SEE OUR CATALOG IN SWEET'S

INDEPENDENT

ACOUSTIC SEE-THRU

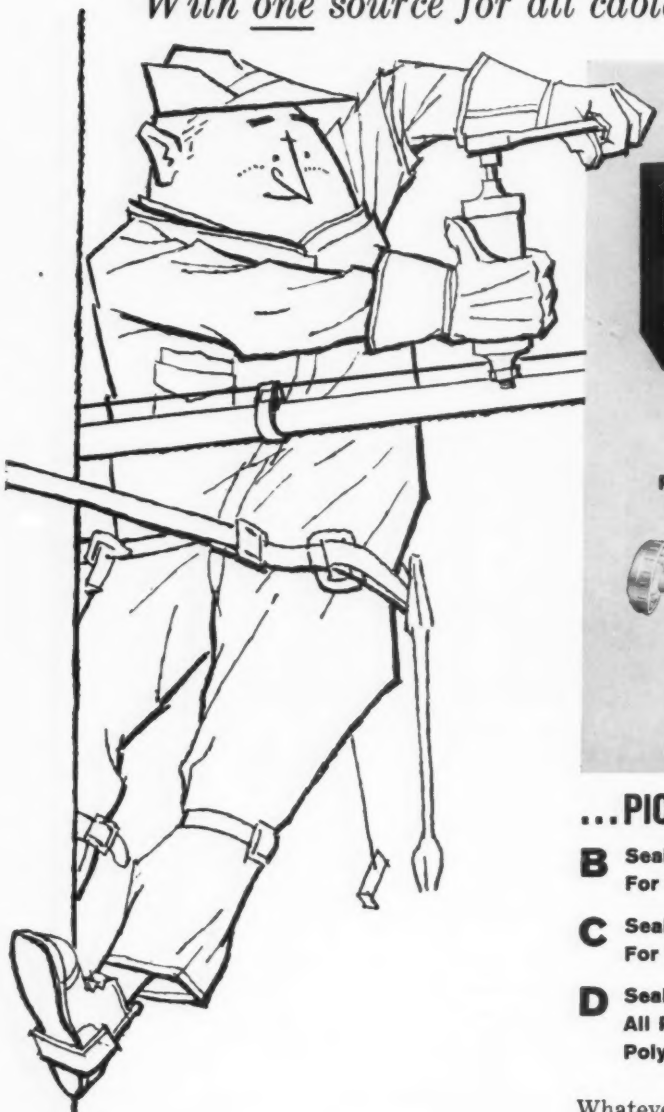
There's a Sherron booth for every location and budget in either zinc coated or stainless steel

SHERRON METALLIC CORP., 1201 FLUSHING AVE., BROOKLYN 37, N. Y.

With GMPCO *it's easy as B, C, D,*

PICK THE PLUG AND THE PACKAGE

With one source for all cable sealing compounds



PICK THE PACKAGE...

Packaged in Can with Activator,

OR...

Prepackaged in disposable plastic Semkit.
Nozzle available for Semkit.

...PICK THE PLUGGING COMPOUND

B **Sealing Compound #G7751**
For Polyethylene Cable

C **Sealing Compound #G7947**
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D **Sealing Compound #G7837**
All Purpose Compound for
Polyethylene and Lead Cable

Whatever your cable plugging problems, you'll find both the compound and the package you prefer available from General Machine Products. Compounds available in regular and large unit sizes. For full information address your inquiries to the address below.

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The line they love to listen to...

Whether it's boy-to-girl talk, business or social news, the message comes through strong and clear when the line wire is Copperweld. This long-life, non-rusting conductor talks better than any other high-strength wire because there's no build-up of noise level or weakened signals caused by corrosion.

Made of pure copper inseparably molten-welded to an alloy steel core, Copperweld Line Wire is low in cost. It has all the properties you need in a telephone line wire—high conductance, corrosion resistance, and rugged strength. You save money with Copperweld since you can string safer, longer spans with fewer poles and less hardware. In addition, your construction costs are low because Copperweld is easy to handle and goes up fast.

Give your subscribers the line they'll love to listen to—Copperweld—the low-cost line wire with hi-fi transmission qualities. It's also ideal for conversion to carrier circuits without additional investment in overhead lines. Write today for prices, sag data and staking tables.

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WIRE AND CABLE DIVISION *Glassport, Pa.*

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Spring Construction and

1961 FORECAST*

GAINS IN STATIONS

INCREASED CONSTRUCTION

SOARING REVENUES

RISING PLANT INVESTMENT

***TELEPHONE ENGINEER & MANAGEMENT'S 1961 Survey of operating data supplied to TE&M's Research Department by 404 of the nation's Independent Telephone companies, representing 64.3% of the Independent telephones in service, 67% of the Independent industry's plant investment, and 69.7% of the Independent telephone industry's operating revenues, indicates the companies expect (1) station gains to continue; (2) operating revenues to rise; and (3) mounting expenditures for service improvements.**

Gross construction additions to the outside plants of the reporting companies amounted to $112,450,547 in 1959. During 1960 outside plant additions totalled $125,967,253, up $13,516,706 from 1959. In 1961 the reporting companies expect gross construction additions to the outside plant to total $131,653,107, an increase of $5,685,854 over the additions made in 1960.

The growth pattern of total telephone industry construction additions shows a healthy upward curve, and based on the data provided by 404 telephone companies there are no prospects currently visible which would indicate a significant downturn in the industry's construction trends.

In 1959 the total gross construction additions of companies reporting to TE&M were $331,585,428. In 1960 the companies reported gross additions of $352,278,181, for a gain of $20,692,753. For 1961, the companies forecast that construction additions will rise to $386,318,214, up $34,040,033 from 1960. — (See January 15, 1961 Telephone Engineer & Management.)

An Up-To-Date Working Tool for Telephone Operating Men and a Timely Sales Aid for Manufacturers of Telephone Equipment and Supplies

This "Special" will present in one big issue, articles and feature departments discussing the telephone industry's newest construction and maintenance practices — the routines and procedures, telephone companies will use in 1961 to complete the industry's $3 billion expansion-improvement program and maintain the industry's $26 billion plant investment.

New Products — Labor Saving Ideas

Aimed at presenting information that will provide telephone men with new ways and means . . . plus . . . presenting new equipment available for coming construction-maintenance projects, the exclusive articles described on the next page will be featured in the April 15, "Spring Construction Special."

prepares another important "SPECIAL"

Maintenance Issue .... APRIL 15

Getting The Most From Your Construction Dollars ..... by John S. Reed

Expansion programs to bring telephone service to new housing areas, increasing toll usage requiring toll circuit additions, and highway building and widening projects result in increased outside plant construction expenses. Labor saving ideas are needed to hold these costs in check. Some of the more recent ideas discussed in this article are:

(a) Improved pole moving procedures

(b) Use of aerial lifts and hydraulic derricks to improve labor performance and reduce construction accidents

(c) New type of crew carrier to reduce transportation time of construction crews

(d) Use of three-man construction crews, and

(e) One-man cable splicing operations.

Maintenance Procedures That Eliminate Trouble Reports ..... By Richard Allen

An increasing number of trouble reports over a period of time is a danger sign to the telephone company manager or plant supervisor that the outside plant and inside equipment is deteriorating. Good maintenance procedures are needed to reduce trouble reports to a favourable minimum. This article reviews methods of promoting good maintenance practices that detect incipient cases of trouble while they are in the process of developing, and before they can cause service interruptions. It points out the importance of following manufacturers' routines for central office maintenance.

Stop Spring Construction Accidents ..... By Myrle Shafer

Not every accident results in injury to the worker involved. In many cases, it is a near-miss with perhaps nothing more than a big scare for the men; but expensive equipment may be disabled or destroyed, and property damage may result with a costly claim for the company to meet. Yet, when a mishap causes injury, other factors besides money cost enter the picture, such as human suffering, loss of earning power, and lowered morale of the injured worker, all of which affect company operations to an adverse degree. Telephone company managers, supervisors, and workers have the responsibility for keeping mishaps from occurring by following safe working procedures. Thus, for telephone construction forces, work areas must be adequately protected from vehicular traffic, proper precautions must be utilized in working near power lines, climbing and working on poles, and in placing wires and cables.

Plant Men Look Over The Compact Car Field ..... By Dick Reynolds

A TE&M staff report on the use of small light-weight vehicles by telephone companies. This article describes the merits of the compact cars and gives data on:

(1) Original costs

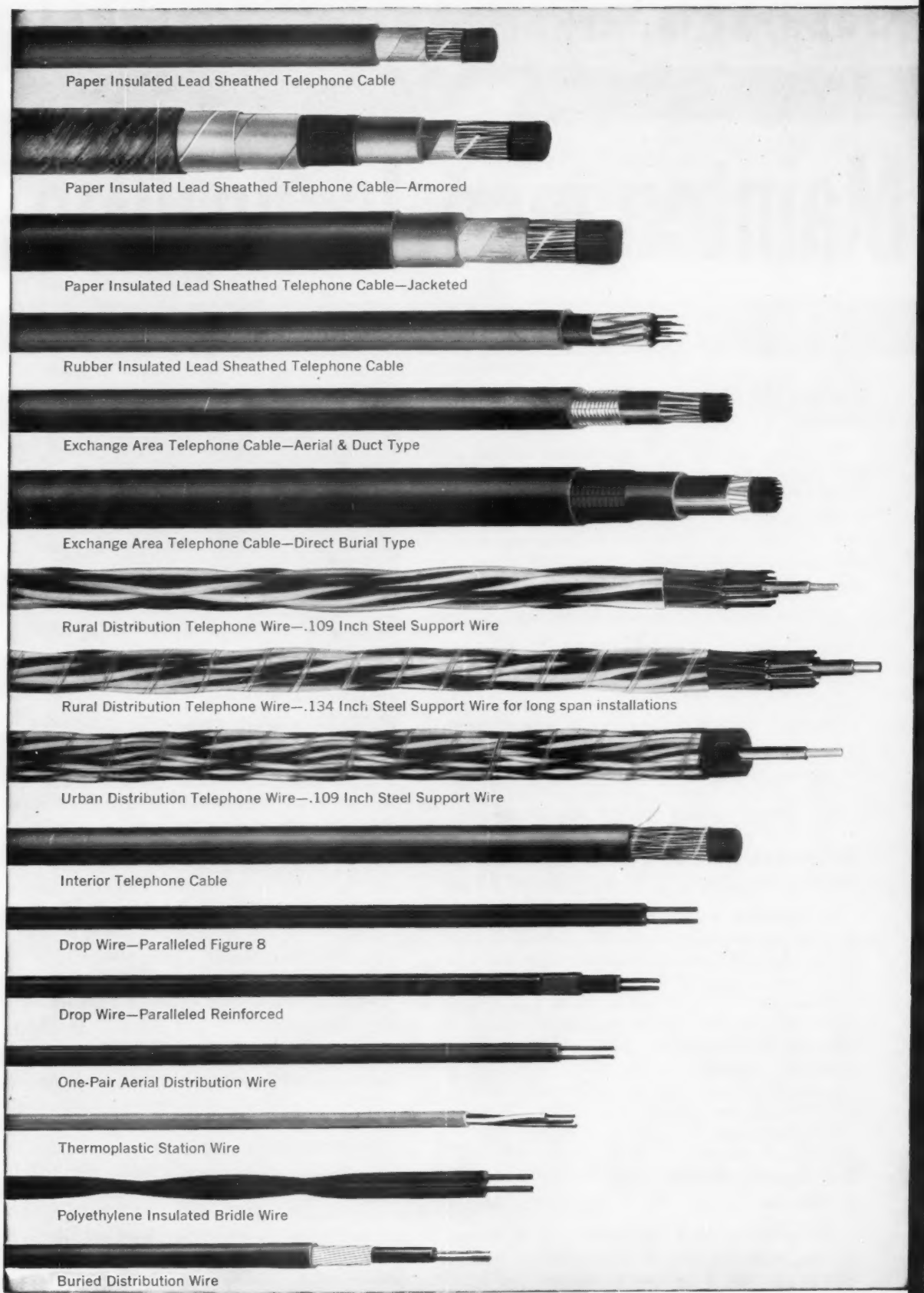
(2) Operating expenses, and

(3) Maintenance procedures.

The Central Office Part In The Construction Program ..... by C. D. Ehinger

This article describes the important part members of the Central office staff play in the completion of the outside plant construction program — tells what the Central Office group must do and suggests routines that will speed up each project.

In addition to the five major articles described above, TE&M's regular departments — "Commercial Department Notes," "Plant Engineering Notes," "Traffic Lights," "New Products' Showcase," and "Keeping Up With Communications" will discuss subjects related to construction and maintenance.


Paper Insulated Lead Sheathed Telephone Cable
Paper Insulated Lead Sheathed Telephone Cable—Armored
Paper Insulated Lead Sheathed Telephone Cable—Jacketed
Rubber Insulated Lead Sheathed Telephone Cable
Exchange Area Telephone Cable—Aerial & Duct Type
Exchange Area Telephone Cable—Direct Burial Type
Rural Distribution Telephone Wire—.109 Inch Steel Support Wire
Rural Distribution Telephone Wire—.134 Inch Steel Support Wire for long span installations
Urban Distribution Telephone Wire—.109 Inch Steel Support Wire
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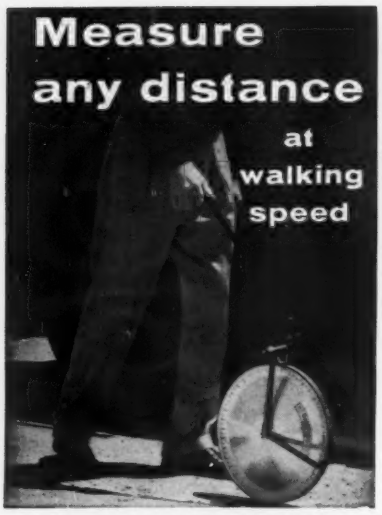

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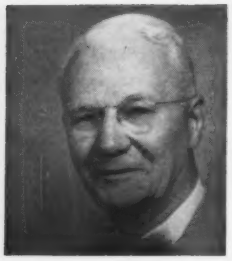


INDUSTRY OBSERVATIONS

By L. A. GRITTEN

After Repeal, What?

OUR industry's battle for repeal of the federal tax on telephone service could be won in 1961. That may not be likely but it is possible. The logic and the arguments of equity are all on the side of those who demand the removal of this "temporary" World War II infliction. If the Congress lives up to its promised termination of the tax this year, then what?

The hungry, deficit-ridden States are waiting to pick up what the Federal government may drop. It is possible that within a few months — a couple of legislative sessions at the most — after repeal of the federal excise tax, forty-nine of the States (we omit Nevada!) will have imposed a similar tax upon our service.

That however will not be merely a change of recipients. There will be several unpleasant differences: It will not then be even theoretically a temporary tax. The state impositions will be permanent.

The tax will not necessarily stay at ten per cent. To most State legislatures a privately-owned utility service is a cow to be milked dry.

The right to pass on the tax to our customers will not necessarily be conceded. It is probable that in many States we shall have to collect the imposition by means of increased rates for service, with all the onus of bitterly fought rate cases that involves.

Certainly the present federal ten per cent excise tax is unfair and unjustified; we must work for its repeal. But the writing on the wall ordains that we must also prepare for what follows. Our entire industry, every association and every operating company, must be ready to battle anew on the State level and to enlist on our side the support of every favorable element of conservative thinking and public sympathy. We must be prepared to put far more effort into the post-repeal problems than ever we have put into the post-war struggle for repeal of this tax. Otherwise a favorable decision in Congress will not be a victory for us, but a change for the worse.

Fuel Cells

AN O.T.S. release, "*Fuel Cell Systems*" (U. S. Air Force) is of interest to telephone men. It discusses the advantages and limitations of various types of fuel cells; and it is "written for the use of technologists without a background in fuel cells, as well as for specialists in the field." Write to O.T.S., U. S. Department of Commerce, Washington 25, D. C. for PB 161 972 (Price 50 cents).

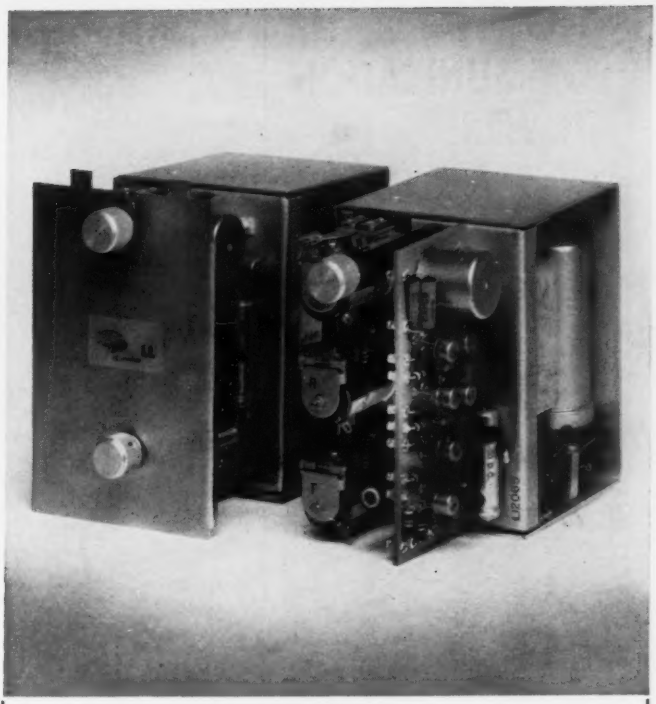
Pelf In Pets

ANOTHER source of easy money is suggested by a paid extra listing in the Everett, Washington telephone directory. It reads: "Routledge, Petey, 1523 Colby AL 2-8786." Petey happens to be a parakeet owned by Mary Routledge, market analyst for West Coast Telephone Company. Miss Routledge states that she carries the listing "just for fun," without any commercial objective whatever, but the possibilities of profitable expansion of the idea are breathtaking.

Our statistical department informs us that in the United States there are 25,123,456 cats, dogs, white rabbits, parrots, parakeets, canaries, guinea pigs, tortoises, kinkajous and monkeys; and that 7.42 per cent of them are dolled up in ribbons, fancy har-

PANHANDLE

Panhandle's New "LL" Subscriber Equipment



LL Signal Modules

incorporates individual transistorized tone signaling per channel, providing the latest in reliability and flexibility to meet operating company requirements.

The signaling concept provides for code bridged, code divided, frequency bridged, frequency divided, superimposed bridged or divided ringing and instantaneous ringing on revertive call with ring on tip, ring, or both simultaneously.

All relays incorporated in the units are dual contact telephone type for long life and trouble free operation.

The LL 100% transistorized open wire and/or cable system is the outgrowth of 12 years and 12,000 terminals of experience in building subscriber carrier. Simplicity of installation and maintenance has been the design criteria of this new system. Full dc operation with standby power has been designed into the system for full operational reliability.

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X & LL Systems Marketed Exclusively By

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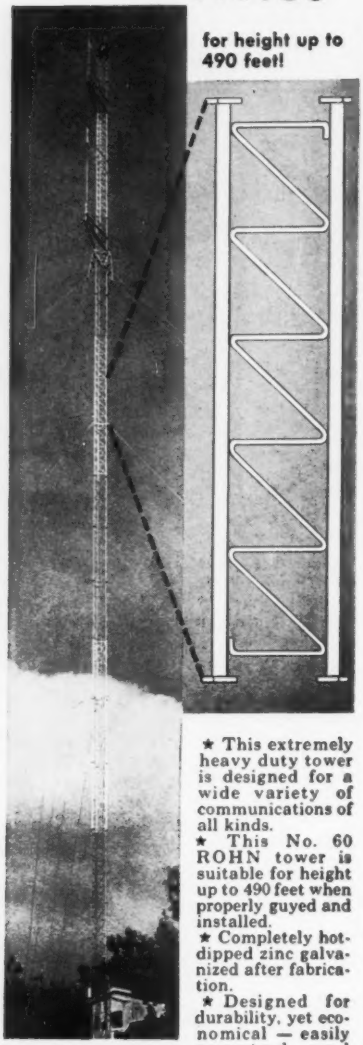
ROHN COMMUNICATION TOWER *No. 60*



for height up to 490 feet!

Shown here is a ROHN No. 60 tower installed to a height of 200 feet with 3 five-foot side arms, mounting antenna for police radio communications.

★ This extremely heavy duty tower is designed for a wide variety of communications of all kinds.
★ This No. 60 ROHN tower is suitable for height up to 490 feet when properly guyed and installed.
★ Completely hot-dipped zinc galvanized after fabrication.
★ Designed for durability, yet economical — easily erected and shipped. ROHN towers have excellent workmanship, construction and design. Each section is 10 feet in length.

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ness, or ornamental cages and called "Muzzie's ickle dahling" by some goofy female who wonders why her husband so often goes out and gets soused.

Each one of these 25 million pets is a prospect for a paid extra listing in a telephone directory, if our merchandising departments will wake up. Our salesmen appear to be sitting idle and indifferent over a gold mine of at least $75 million a year.

Enthusiasm

IN A remarkable address at Baylor University in Waco, Texas, Edwin M. Clark, president of the Southwestern Bell Telephone Company, appealed for more enthusiasm in every phase of our working lives. "Too many people," said Mr. Clark, "lack this vital spark. Too many let themselves lead humdrum lives, without caring much about anything."

We may ask why enthusiasm is lacking, what is the thumb on the artery that impedes the blood stream of our natural enthusiasms? In an intensely interesting business, what dampens the thirst for knowledge and advancement of so many telephone workers who seem content to do merely what they must, for so many hours, for so many dollars?

More than any other thing, we would answer, it is the effect of rigid union wage schedules. As things are now, to be honest a telephone manager should tell every new union employe something like this: "Here is the schedule that will govern your employment here. Your starting wage will be so much. At the end of so many months you will get this. After a year you will get that. After three years you will get so-and-so. If you commit a crime or if you prove to be hopelessly incompetent, we may try to get rid of you before then. Otherwise, you will drift along per schedule until you reach the maximum rate. There you will stick, unless you have the exceptional guts and good fortune to escape from the union into a management position. However good your work, however superior you may be to the man beside you in the same bracket, we cannot promote you ahead of that schedule."

Like any generality, that is only true in part. Many union telephone workers give the best that is in them, for the work's sake, regardless of their limitations. But that picture comes close to the general condition.

Union wage schedules and automatic advancement to a fixed maximum are the most deadening influences in our business. They are the worst enemy of that essential enthusiasm for which Mr. Clark so eloquently pleads.

In The Mail

WILLARD WADE, president of the California Interstate Telephone Company, Victorville, Calif., referring to our recent comment: "Years ago we permitted employes to take advantage of the company's purchasing power. It was then eliminated completely, even for 'Mahogany Row'. After doing it both ways we would not go back to the old way of permitting it."

V. C. Gordon, president of the El Paso Telephone Company, El Paso, Ill., referring to our call for a more adequately descriptive name for a telephone company (TE&M 1/1/61), suggests: "A two-syllable word manufactured from telephone and transmission, which is what we are trying to express — TELTRAN . . . We would gladly change our name, after 63 years, to TELTRAN of EL PASO, or EL PASO TELTRAN, and be the first to do it, if this word meets with favor in the industry."

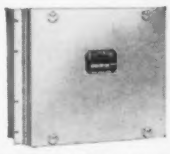
What Is A Library?

WEBSTER defines a library: "A room or building where a collection of books, etc., is kept." Old stuff!

The American Library Association will stage an exhibit "The Library of the Future" at the Century 21 Exposition in Seattle next year. It will display, says Scientific Information Notes: "random access data processing machines, film storage and retrieval machines, audio-visual devices, teaching machines, film viewers and printers, communication devices including distant television transmission, and machine translators." No, they don't say one word about books.

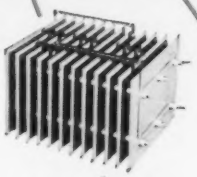
When planning for the future...
...look to the past

FLOTROL BATTERY CHARGERS

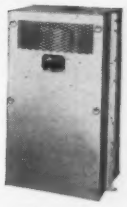


CARRIER SUPPLY UNITS

BAT-TAP D/C VOLTAGE REDUCERS



DRY CEMF CELLS



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Today's telephone plant installation must give trouble-free service to the coming generation. Plan for the future with the help of Lorain... join our many satisfied customers whose Lorain equipment has already withstood the test of time.

The line of power equipment developed and manufactured by Lorain is the most complete in the telephone industry. 40 models of Sub-Cycle Ringing Converters, 550 models of Flotrol Battery Chargers, 43 models of Power Supply Units, 13 models of Tone Generators, 48 models of CEMF Cells.

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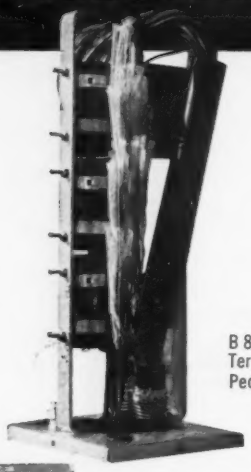

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For easy installation and positive all-weather protection of outside buried plant terminals, order Superior terminal Pedestals.

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keeping up with COMMUNICATIONS

Navy to develop equipment for shipboard satellite communications terminal . . . New space company organized by Britons . . . Electronic method proposed for high-speed teleprinters.

Navy To Provide Satellite Communications Ship

THE U. S. Navy's Bureau of Ships will design and develop equipment for a shipboard satellite communications terminal capable of communicating with two Army shore stations through the Advent satellite, which the military proposes to put into orbit 22,300 miles above the equator in a program aimed at developing a military capability for high capacity, secure, worldwide instantaneous radio communications.

In announcing its participation last month, the Navy said that its mobile terminal will serve "as a unique test of the system's capabilities. The ship will operate in many parts of the world testing communications capabilities and provide data on fringe area reception, propagation characteristics and system security, and developing military operational satellite communications design criteria and concepts."

The satellite communication ship will require solution by the Navy's Bureau of Ships of many difficult development problems, including the design of a suitable antenna system capable of both transmitting and receiving at microwave frequencies while maintaining the pointing accuracy required in spite of the ship's motion.

New Space Company Organized By Britons

FORMATION of a British company which aims to make outer space profitable, was announced last month. The new organization is the British Space Development Co., Ltd., with initial capital of 20,000 pounds ($56,000). Its first interest is the possibility of using earth satellites for communications and television broadcasts.

Formation of the company was announced at a recent press conference by Sir Robert Renwick, industrialist and stock broker. In World War II he was controller of communications for the air ministry.

Companies uniting in the new enterprise include Rolls Royce, De Havilland, Pye, Decca Radar, the Rank organization, Associated Electrical Industries, Associated Television and British Insulated Callender's Cables.

Britain must "get into space" to preserve London as the communications center of the world, Renwick said.

The first objective of the new company, he added, will be to train technical personnel and to set up close contacts with United Kingdom and Commonwealth countries.

Electronic Method Proposed For High-Speed Teleprinters

NEW electronic method for transmission and reception of teleprinter code which will give more efficient reception was proposed January 31 to the American Institute of Electrical Engineers, at its Winter General Meeting in New York City.

In this method, described by N. N. Biswas, University of Roorkee, India, "the teleprinter receiver is completely

Please turn to page 28

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UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

USITA keystone of independent telephony

Safety's Still First

By ROY SAVAGE

Roy Savage, director of supply sales, Automatic Electric Sales Corporation.

At numerous times throughout the year, the National Safety Council increases its efforts to make each of us more aware of the importance of safety. Highway safety is usually given the greatest emphasis, but safety at home and on the job are stressed also. Do these campaigns really make us more aware? And if they do, does increased awareness cut down on accidents? Both are moot questions currently under discussion by psychologists and safety experts.

The safety people say that while the total number of accidents continues to climb, the accident rate has been reduced. The psychologists dispute this statistical explanation and offer one of their own. Many people, they say, are incapable of facing unpleasant possibilities, and will tune their minds out when presented with the subject of accidents, possible disfiguration or death.

To support their view, the psychologists point to the experience of one of our leading automobile manufacturers. A few years back, this company decided to promote that season's line of cars as the safest autos people could drive. They began an advertising campaign which promoted seat belts and safety glass as standard equipment. Their sales dropped drastically, and they quickly switched their advertising approach. The psychologists explain that for many people, the company's cars had become symbols of an unpleasant possibility.

INDUSTRY'S RECORD GOOD

But what of the very good record that industry has made in this area? The businessman does not run from this problem. He accepts the challenge and acts to solve it. He uses the suggestions of the NSC concerning safe practices and safety devices. He wages a constant struggle against accidents and carelessness on the job. He inspires the same attitude in his men. The result is a greatly improved safety record.

The same businessman who may refuse to listen to warnings that affect him or his family personally, may very well heed the same warnings when they affect his company or his employees. This, according to the psychologists, is a difference between personal and business or social consequences. The businessman can see the merits of safety campaigns objectively, and he acts unemotionally to provide safety for his people and his plant.

Another factor in the businessman's favor is his desire to do the job the right way. If his employees share this desire, their safety record is bound to improve, because the correct way is always the safe way.

We don't know who has the right answer. Both views have some merit and the truth probably lies in a combination of the two schools of thought. Although the psychological answer may be correct, we feel that constant safety reminders must have some positive affect on people willing to heed them, and safety campaigns and slogans should be encouraged.

One thing we do know. Business has made the best safety record, and utility companies, especially telephone companies, have been leaders in the effort. This is due, not only to the awareness of the telephone man, but his use of safe practices and safety devices. Still more encouraging are the many new products being developed to improve safety standards still further.

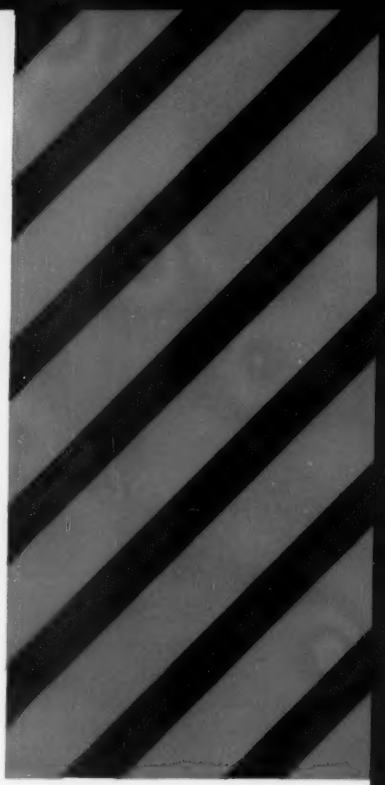
IMPROVED DEVICES

The latest safety ladder for power and telephone companies is made of wood and covered with a thick coating of fibre glass. These two materials combine high resistance to electrical charges, durability and long life.

Highway and roadside construction is an area that is mushrooming with improved safety products. The guiding of traffic around men at work is made more feasible by the use of flashing lights, flags, traffic cones and flares. These warning signals give the motorist ample time to adjust to the unusual road condition. Used properly, these devices can move traffic smoothly and safely with a minimum of inconvenience to motorists and work crews.

Proper placement of these devices is essential to their success. For this reason we recommend two NSC pamphlets* on the subject. These pamphlets show how safety can make all our jobs better jobs. They should be of great interest to anyone who wants to improve the safety standards of his company and his community.

*Copies available by writing Mr. Savage at Automatic Electric Sales Corp., Northlake, Illinois



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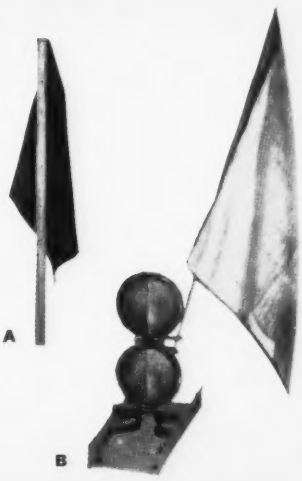
Here are just a few of the improved safety devices that keep your men safe while they work. There are others, of course... in stock... in our warehouses. All are designed for maximum protection. When safety counts, contact your AE representative.

FLASHING LIGHTS for use with barricades, vehicles. Light is detachable for use with tripod for heights up to 8 feet. Compact, lightweight unit flashes clear red beam. Batteries last up to 300 hours.



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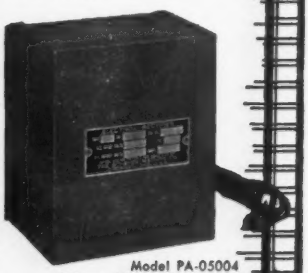

Model PA-05004
Schauer Battery Eliminator

Here's a sure SCHAUER power source for the operator's circuit on magneto switchboards

Schauer Type PA-05004 Battery Eliminator delivers constant, hum-free direct current to the operator's circuit. Equipped with relay for automatically transferring power to stand-by dry cells in the event of AC failure. Standard capacity is 4 volts DC at 0.5 amps. Steel case, for wall mounting is 5½"x6¼"x4".

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"Keeping Up With Communications"

(Concluded from page 24)

electronic. It recognizes the teleprinter signal serially, but feeds a mechanical printer with a 5-wire parallel input."

"The incoming signal encounters a gate and a check circuit," Biswas said. "The gate diverts the negative pulses to the counter, and the positive pulses to the register, which can store 5 bits of information in 5 locations. The reset signal has the uniqueness of having two consecutive positive pulses with no negative pulse in between. The check circuit produces a pulse output only when it receives the reset signal. This pulse resets the counter and register to the initial conditions from whatever conditions they might be at that time.

"When the counter receives the first negative pulse, the register is conditioned to store the incoming information which may be a positive pulse in case of mark, no pulse in case of space, in the first location. In this way the register stores the code of the incoming character as a parallel output. When the counter receives the last and sixth negative pulse, the code stored in the register is transferred to the memory; the register comes back to initial condition and becomes free to receive the next code train. When the next code train is being received by the counter and register, the memory actuates the printer to print the character stored in it."

In this system, "the teleprinter receiver has a greater freedom of working. It does no longer remain a single speed machine, but can receive messages at a continuously variable speed without requiring any manual adjustment.

"Moreover," Biswas stated, "the accuracy of reception depends on the detection of pulses and their polarities, rather than their relative durations. Hence the bias and other types of distortion which affect critically the existing receivers, are less likely to introduce any error. If somehow the line breaks or one negative pulse is lost during transmission, the error is not cumulative, but is confined to one character only, as the reset signal preceding the code elements brings the receiver back to initial condition.

"Except the tape mechanism at the input and the printer or reperforator at the output, the teleprinter is completely electronic and hence can be made of solid state devices. The design of electronic regenerative repeaters is also simplified as the timing circuit is not necessary. In addition to these, the elimination of voice frequency terminal will result in great savings in cost and maintenance."

Family of "Mobots"

PLANS for the development of a "family" of mobile, remote handling mechanisms to perform physical work in hazardous areas for virtually any application was described for members of the Washington, D. C. chapter of the Institute of Radio Engineers last month by Dr. John W. Clark, manager of the Hughes Aircraft Co.'s Nuclear Electronics Lab.

Dr. Clark said Hughes has constructed a "sufficient number" of "Mobots" to establish "complete confidence that these machines are feasible and reliable, and further, that acquisition of the necessary operating skill is not unreasonably difficult." Mobots now in operation are being used on a cable-controlled basis, but the Hughes scientist said radio-controlled units are in the offing.

The company's petition for the specific allocation of 100 megacycles of microwave spectrum space for the Mobot radio-controlled operation was recently denied by the FCC, but the Commission encouraged developmental operations.

In industrial uses, Dr. Clark said, Mobots "will not only relieve requirements upon personnel for exposure to physical hazards, but will, by means of recording pre-determined sequences of operations, greatly reduce the necessity for manually performing repetitive operations."

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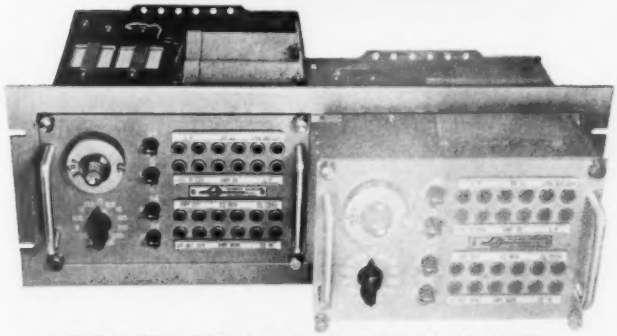

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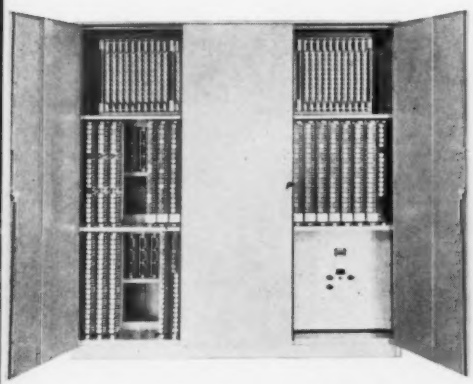

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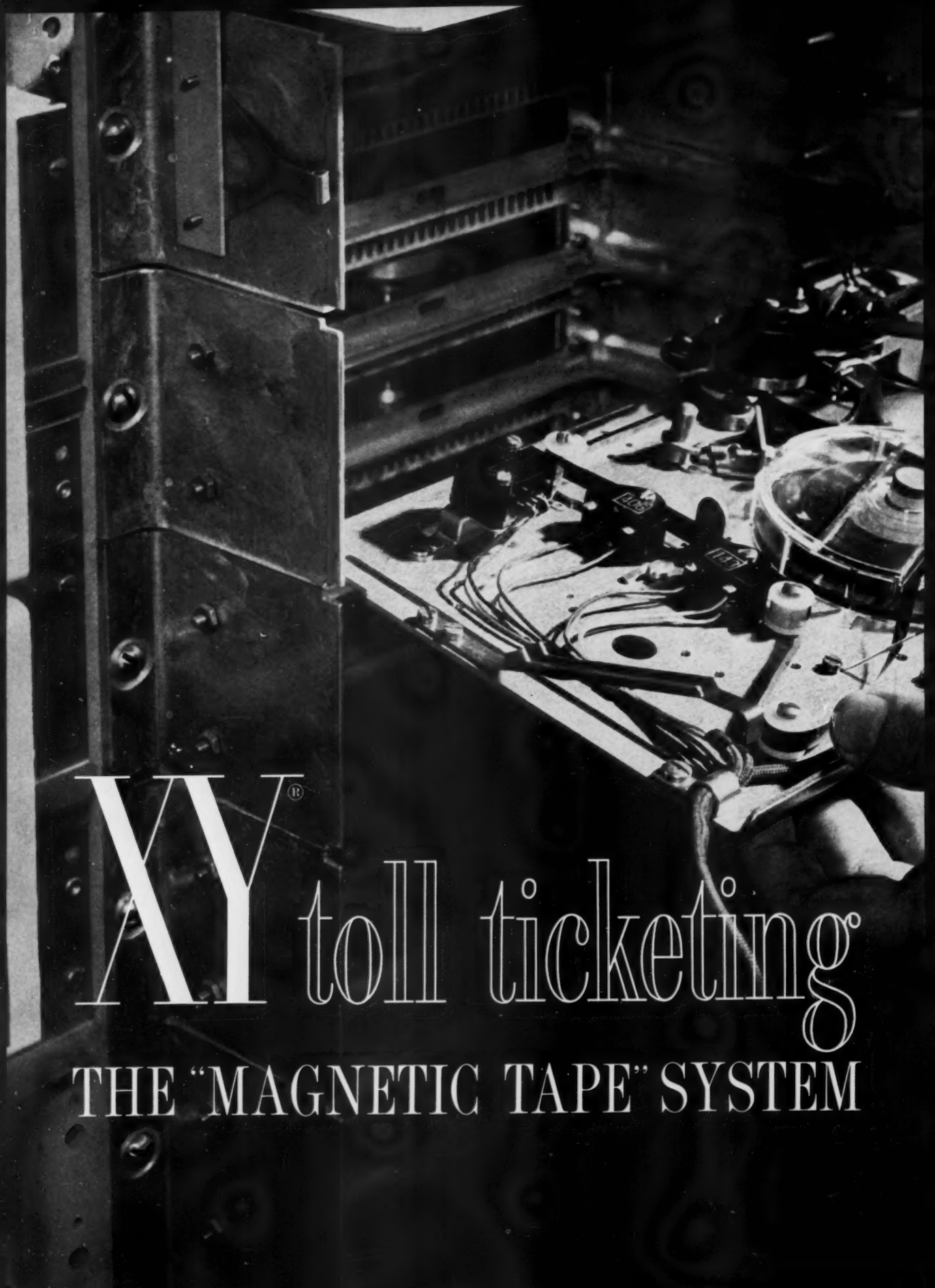
Conductor Size	Number of Pairs	Guaranteed Number of Pairs	Approximate Overall Diameter	Approximate Net Weight	Shipping Weight	Standard Reel Length
			inches	lb per M ft	lb per M ft	feet
19	556	556	2.97	5950	8430	700
22	1111	1111	2.96	5940	8400	700
24	1818	1815	2.96	6060	8530	700
26	2424	2418	2.89	5270	7750	700
26	2727	2721	3.04	5990	8470	700

PAPER-LEAD

Conductor Size	Number of Pairs	Guaranteed Number of Pairs	Approximate Overall Diameter	Approximate Net Weight	Shipping Weight	Standard Reel Length
			inches	lb per M ft	lb per M ft	feet
19	556	556	2.86	10,370	12,850	700
22	1111	1111	2.87	10,410	12,900	700
24	1818	1815	2.85	10,320	12,800	700
26	2424	2418	2.78	9,520	12,000	700
26	2727	2721	2.94	10,550	12,920	700



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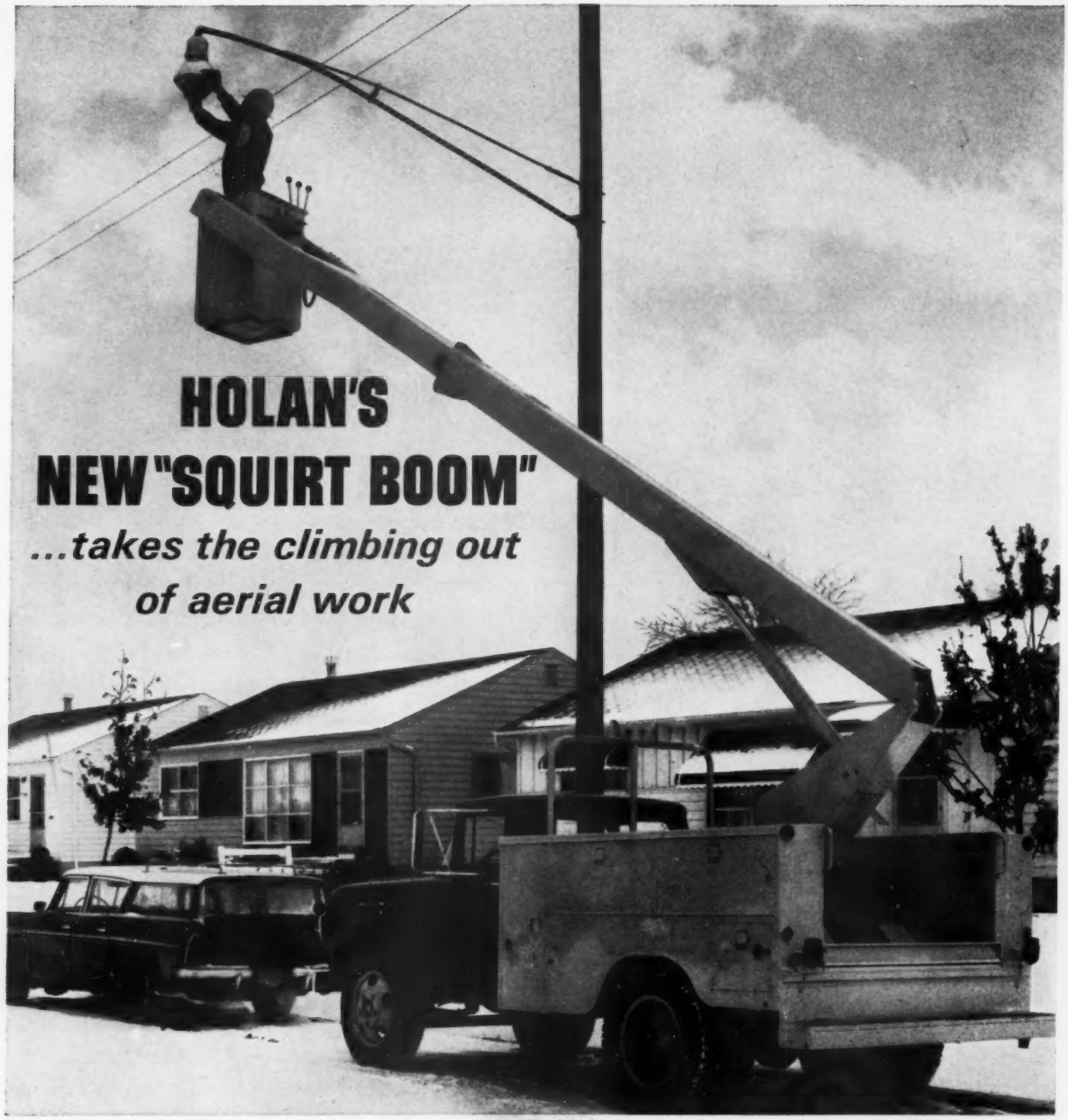

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TELEPHONE ENGINEER
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EDITORIAL

COMMENT

II:-"That Original-Cost Theory"

WE WELL know the records of the past prove that in many cases, the legislation proposed by one state legislature often follows the pattern of legislation proposed by another state, and last month it was evident that Missouri and Kansas were more than good neighbors.

In fact some members of the legislative bodies of both Kansas and Missouri gave ample evidence of their determined efforts to obtain the passage of bills directing their respective regulatory commissions to use *original cost less depreciation as the basis for determining the rates and charges made by public utilities for their services.*

In brief, (1) the Missouri proposal is nothing more or less than an attempt to upset a 1957 decision and a 1960 affirmation of the Missouri Supreme Court that the "current" or "fair value" of a utility's property must be considered in determining just and reasonable rates; and, (2) the Kansas bill is squarely aimed at doing the same job to a decision of the Shawnee (Kans.) District Court which held that the Kansas Corporation Commission should have considered the *fair value* of Southwestern Bell Telephone Company's property, and that the commission *erred* in making *original cost less depreciation* the basis of figuring the company's profits for rate making purposes. (*See TE&M editorial, Mar.* 1, 1961, *page* 33.)

We will grant that when price levels remain constant for a long period of time, the original cost concept should not adversely affect a company's ability to finance, expand, improve and properly maintain its property.

However, a short time with any good book listing the economic facts of the past will prove: (1) the level of prices has been upward since shortly after the day money became the medium of exchange; and (2) that history records very few periods of price decline or stability.

Only a few months ago during the hearings of the Michigan Bell Telephone Company's rate application before the Michigan Public Service Commission, Eugene P. Nelson, the company's valuation and depreciation engineer, testified that at the end of March, 1959, the current value of the company's intrastate investment was $701,736,000, compared with an original cost of $572,087,000, and estimated the June 30, 1959, figure at $707,048,000 — both figures considerably higher than the original cost.

At the same hearing another witness, Father William T. Hogan, professor of economics at Fordham University, noted that the purchasing power of the dollar in 1958 was 50 per cent below that of 1939 and said "*industry generally has not charged off adequate depreciation on its facilities.*"

Another witness, Dr. Walter A. Morton, professor of economics at the University of Wisconsin, stated "*a fair rate return must be based on the value of the* 1959 *dollar and not those of another vintage*" and emphasized that in "*utility rate making, inflation has to be recognized...*"

These statements from the past should be carefully studied by the legislative bodies of Kansas and Missouri, and by the commissions of states now using the original-cost method for computing the rate base of a public utility.

We believe they should be studied and restudied until all regulatory commissions recognize: (1) that the original-cost theory is entirely deficient as a method of setting rates during today's period of high costs; and (2) the champions of the theory in Kansas and Missouri are actually attempting to force upon the utilities a law which says to each utility — "*You can't earn now on what your property is worth, but you can earn on what it cost years ago, and no allowance will be made for the decreased value of the dollar and increased costs.*"

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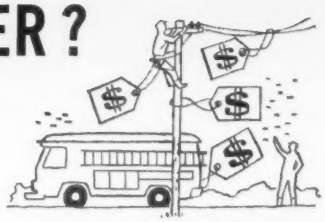
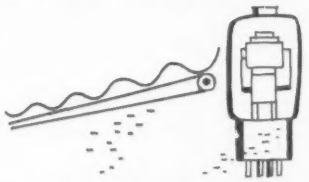


Outside plant... poles, wire, cable and construction... have long been a major cost to operating telephone companies.

The possibility of transmitting modulated frequency impulses over wire, adding to that wire's transmission capacity, became potentially practical with the development of the vacuum tube. Such a possibility would enable operating companies to increase traffic handling capacities and to provide additional stations without adding outside plant facilities!



Toward that goal, Carrier has been developed over the years, until today it is eminently practical for any and every company faced with the problem of providing extended service and additional stations without installing costly additional physical lines.

Since Carrier is essentially a form of radio, many operating companies, while knowing of their need for Carrier, have been hesitant to employ a tranmission medium that seems less understandable than ordinary physical lines.

In the development of North Electric Carrier, engineers who know the economic and technical requirements of the independent industry, have been most successful in achieving a dual goal.

North Electric Carrier today is economical... both in initial cost and in operation.

North Electric Carrier today is simple and efficient... it has been refined to basic principles of operation and to quick and easy maintainability.

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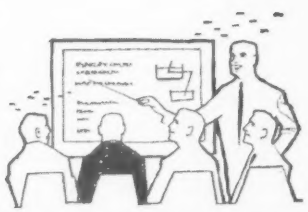

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WASHINGTON

OBSERVATIONS

Telephone Excise Removal Possible In '61

1961
COULD BE
THE YEAR

Some Washington observers believe prospects for removal of the local telephone excise tax are somewhat better this year than they have been in the past . . . Negotiations between Western Union and A. T. & T. Co. involve voice connection of Western Union's private line services with local telephone facilities . . . Expect early FCC decision on Gen. Tel. request that pending investigation of WATS be handled as single proceeding.

By ROLAND DAVIES and FRED HENCK

AT THE risk of overoptimism, it appears to some Washington observers that prospects for removal of the local telephone excise tax, and possibly all communications, are somewhat better this year than they have been in the past.

On the surface, of course, the situation is pretty much the same. As of this writing, 67 bills had been introduced in the House providing either for repeal or a termination date for the levies. The communications excise revenues of the federal government continue to amount to big money, allowing for no change in the position of opponents of repeal that such action would take a sizeable bite in Uncle Sam's income.

No official expression on the subject has come from the Kennedy administration, and so far as was known at the time this column was written, no decision had been made on the subject.

Only one thing is certain: without strong White House pressure in the past, at least the local telephone excise tax would have gone by the boards. By the same token, repeal of the federal excise on local telephone service became considerably less attractive because of the proposals of the Federal-State Action Committee, another Eisenhower administration-backed program, that states take over part of the tax. With a new administration in the White House, at least there is a chance that the executive branch will take a different approach to these subjects.

Quite evidently, the Kennedy administration will seek to use national tax policy as a means of coping with its number one domestic concern, the general economic situation. Whether the White House will feel that the economy would be stimulatd by an equivalent reduction in revenues from other taxes, such as personal or corporate income levies, remains to be seen.

While the Kennedy administration does not appear to be casual about an unbalanced federal budget, it also seems assured that the new White House organization does not regard balancing the budget as an overriding, paramount consideration. Again, opposition to communications excise repeal on that ground, while it is quite possible, might not be as strong as it has been heretofore.

All told, prospects appear to have improved, but expiration of the local telephone tax on schedule June 30 is far from assured, and proponents of such action still have their work cut out.

Incidentally, most of the bills introduced this year, of the 67 total at the close of February, call for repeal of all communications excises. In addition, several Congressmen have submitted measures providing for a June 30, 1961, termination date for all communications taxes, and not merely the local telephone impost. One or two of the bills refer only to the local telephone tax.

Depreciation Accounting

FOUR-YEAR-OLD rulemaking proceeding on a subject which has attracted widespread interest in utility regulatory circles in recent years, but with rel-

atively little of it directly involving communications companies, has been terminated by the Federal Communications Commission.

The rulemaking proceeding, on accelerated depreciation accounting, was launched principally at the request of the General Telephone & Electronics Corp., and in part on a petition by the Wisconsin Public Service Commission.

General subsequently withdrew its request, stating that its operating companies had decided not to use the accelerated depreciation treatment. The Commission's action terminating the proceeding also included dismissal of the Wisconsin commission's petition for oral argument on the subject.

In its announcement of the action, the FCC noted that "Interest in use of accelerated depreciation by communication common carriers has diminished since the commencement of the proceeding, and any such carrier may apply for specific waiver of the accounting rules to accommodate its requirements."

Actually it was understood that of the various common carriers regulated by the FCC, only two Independent telephone companies are applying the accelerated depreciation treatment, and that one of them uses it in connection with only a small portion of its plant.

A Question Answered

SOME insight into the answer to a question raised in Washington recently by a number of observers of the communications scene—why the Western Union Telegraph Co. did not file comments with the Federal Communications Commission on Bell System tariff filings providing for wide area telephone service and Telpak service — has been provided in the Western Union annual report to shareowners.

In view of Western Union's increasing emphasis on its private line services, and the obvious competitive nature of record vs. voice communications services, it had been expected that the telegraph company would submit views to the FCC when the telephone company filed its two new concepts of volume ratemaking — WATS and Telpak.

Now, it develops that Western Union and the American Telephone & Telegraph Co. have been negotiating on a subject close to Western Union's heart — voice interconnection of Western Union's private line services with local telephone facilities, so that the telegraph company could provide services which it is now unable to do.

The negotiations involve possible changes in the "interchange of facilities" contracts between the Bell System companies and Western Union, principal application of which is the lease by Western Union of very extensive facilities from the telephone companies.

The telegraph company's annual report declared that "We are currently discussing with the Bell System the modification of existing contracts for the interchange of facilities. These modifications would enable Western Union to use facilities leased from the telephone company for new telecommunications services not now encompassed in these contracts including alternate record-voice. While certain details remain to be worked out, it is believed that a satisfactory agreement will be reached."

Highway Relocation Costs

THE provision in the Federal-Aid Highway Act of 1956 that federal funds may be used to reimburse a state which pays for the costs of relocating public utility facilities made necessary by highway construction has "spurred" legislation in various states which has resulted in a "marked increase in the estimated costs" for such reimbursement, a report by the Bureau of Public Roads to Congress on a highway cost allocation study has declared.

By the end of last year, 19 states had enacted laws providing for payments to utilities, and although some were declared unconstitutional by state courts, 17 were in effect on Dec. 31, the report pointed out.

It also noted that a 1958 study estimated that the cost of reimbursement over the remaining life of the federal-aid highway program would total about $450,000,000, but in a 1961 reestimate of the cost of utility relocation or adjustments in the various states and the District of Columbia, the figure was set at $617,000,000.

Wide Area Service

DECISION by the Federal Communications Commission is expected soon on the request of the General Telephone & Electronics Corp. telephone operating companies that the pending investigation of wide area telephone service be carried on as a single proceeding.

The hearing is due to begin March 28, after distribution two weeks earlier of prepared testimony by AT&T.

AT&T has asked the FCC to deny the General petition, and at the same time requested the FCC to limit participation of the General companies and the U. S. Independent Telephone Association in the first phase of the hearing — on the WATS rates and regulations themselves, without reference to settlement issues — so that the two portions of the hearing will not become intermingled.

In opposing the General request that the FCC reconsider its action dividing the case into two parts, with divisions of tolls and settlements to be taken up as the second phase, AT&T declared that an FCC decision on divisions of charges is not a prerequisite to Independent telephone companies' participating in the service.

"There is no requirement, either in law or in fact, that the division of revenues from rates must be determined before the lawfulness of rates themselves can be determined," AT&T commented. "If any such requirement existed, the Commission would be unable to determine the lawfulnes of any rates involving two or more connecting carriers until it had first made a determination regarding the division of revenues . . . The wholly impracticable character of any such requirement is obvious." — *Roland Davies & Fred Henck.*

Part Four of A Special TE&M Report

REGULATION AND FREE ENTERPRISE

"FOR THE GOOD OF THE COUNTRY"

Free enterprise and regulation go together. They reinforce each other. If free enterprise did not exist, there would be no need for regulation — for regulated industry is part and parcel of free enterprise. (Concluded from the Feb. 15 issue.) To order reprints see page 69.

By JOSEPH J. BROWN

THE relationship between regulation and free enterprise needs study. It has suffered from neglect in the universities and apathy from the general public. Popular misconceptions about it are commonplace.

The man in the street has the simple idea that regulation and free enterprise are in different worlds. And at times I suspect some utility managers and regulators have the same idea.

The fact is, of course, that free enterprise and regulation go together. They reinforce each other. If there were no free enterprise, there would be no need for regulation. For regulated industry is part and parcel of free enterprise — a highly significant part, as the first article in this series pointed out.

The very existence of regulation carries implied acceptance of the principle of private ownership — and with it, the profit motive and the incentive system.

Dr. Ray E. Untereiner, former member of the California commission, observed recently, "There may be room in the Legislature for advocates of public ownership but there is no room for them on a regulatory agency. If ever the people should decide on public rather than private ownership of the utilities, that decision must be made either by direct vote or by their elected legislative representatives."

Any consideration of free enterprise today must recognize that its capacity is being challenged. Many people in public life are questioning its ability to produce more economic growth than Russia now boasts.

It is ironic that this question should be asked at the very time when our wealth is transforming this country from a mass democracy into a mass aristocracy. For the American citizen is now a large consumer of things once reserved for aristocrats — education, travel and recreation, for example.

This question, and a stream of others affecting free enterprise, carry social and political as well as economic considerations. How well they are answered may intimately affect the functioning and capacity of free enterprise in the future.

But such questions will not be answered in corporate board rooms. They will be answered in the halls of Congress, in the state legislatures, and at the ballot box.

The Citizens Responsibility

THIS underlines the responsibility of the individual citizen. For the quality of decision in a democracy is exactly as good as the quality of decisions by its individual members. It cannot be better, or worse. Collectively, they determine the values and take the actions.

Our future calls for effort by every citizen in informing himself on public issues. It requires that he make his views known to his legislative representatives. And it demands his carefully considered vote on election day.

It seems to me that this responsibility carries particular weight as it applies to those whose capacities of leadership have carried them to responsible positions in business. Our purchases have elected them to leadership as surely as we elect our political leaders. In fact, I am

Mr. Brown is chairman of the Nebraska State Railway Commission.

afraid that some people cast their dollars with more care than their ballots.

If these men ignore public affairs and rock along in the lazy hammock of status quo, they will find that their inaction itself affects the quality of public decisions — and not for the better. In the end their own interests will suffer. This applies to leaders in regulated and non-regulated business alike.

Taxes & Utility Rates

TO USE a specific example, taxes are at the heart of much public reaction to utility rates. Most consumers blame the utility and the commission for every rate increase, when they should blame the tax collector for more than half the increase, and inflation, bred by national economic policy, for the rest.

As the chairman of the Indiana Commission said recently, the tax burden brings "disrepute and dishonor" to commissions and utilities.

The responsibility of utility managers is clear in this matter. They cannot logically condemn tax policy while ignoring the place where new taxes are generated — the legislative bodies. If managers hope to have their views evaluated fairly in future legislative decisions, the responsibility to make these views known rests squarely on their shoulders.

At the same time, they must see that the press is properly informed about utility actions, views and problems. This is essential if the public as a whole is to make intelligent decisions.

Regulation & Competition

IT IS commonly said that regulation is a substitute for competition in our free enterprise system. Certainly it seems desirable to encourage the many benefits which competition provides. On any list of factors in American progress, the spirit of competition must rank near the top. It is a proven spur to superior performance.

But new thought, it seems to me, should be devoted to the implications of the statement that regulation is a substitute for competition. It raises several questions deserving scholarly attention.

First, just how does competition work in our economy? We can hardly make regulation a good substitute for it unless we can answer this question.

As I see competition in American business today, it looks very broad. It goes far beyond the pure price competition described by early economists. In rising degree, the most successful competitive firms are those which offer something new and better to attract the customer — an improved product, better packaging, more service, or more attractive surroundings. This competition produces change. In fact, it cannot exist without change. And the change, of course, has brought abundance to American families.

This competition brings the most rewards to the companies which produce the most improvements. Obviously, we want regulation to encourage innovation and stimulate efficiency, too.

REPRINTS WILL BE AVAILABLE

In response to our query in the Feb. 15 issue, several companies have indicated they would like copies of the reprint of Mr. Brown's series on regulation for distribution to employes, the press, stockholders, and others interested in regulated industries.

To order your copies, please use the order blank you'll find on page 69 of this issue. As we must determine the number of copies required we will appreciate receiving your order as soon as possible.

Efficient Management

REGULATION has long and often paid lip service to fostering efficient management of utilities, and of rewarding such efficiency. Somehow, despite this, I think I have seen more evidence of pampering ailing utilities than I have seen of further strengthening vigorous ones.

Yet the shortage of dependable yardsticks for such things as innovation and efficiency makes this hard to accomplish. Wisdom and imagination are called for if we are to make real progress in this area.

In considering regulation as a substitute for competition, a second question deserves attention. How much competitive pressure exists in the utilities now?

Broadly, of course, there is quite a lot. Electricity competes with gas, which competes with oil. Railroads compete with airlines, and both compete with the highway. Telephone competes with telegraph, the U. S. Mail, and increasingly with manufacturers of specialized communications equipment.

This competition places varying degrees of pressure on utility pricing. But other competitive areas exist, too.

There is not only the case of the housewife who looks over a color phone display, then walks next door and buys a toaster. There is the engineer who decides to apply for a job in an oil company instead of a railroad. There is the farmer who thinks about putting part of his harvest money in gas company stock, then orders shares in a business machine firm. There are many such examples.

The point is that if regulators are to do their jobs well, they must be alert to general developments in employment and labor relations, in the capital markets, in general availability of raw materials. They must have knowledge of the impact of inflation, the changing rela-

Please turn to page 68

A TELEPHONE ENGINEER AND MANAGEMENT REPORT ON

LOADING

New Approach To Economical Loading

A NEW LOADING COIL CASE

- **A newly designed loading coil case and a unique method of packaging loading coils permits (1) economies in loading materials and methods; (2) more efficient use of plant installation labor; and (3) reduces capital requirements by encouraging investment in coils on the basis of current needs.**

By L. L. RUGGLES and J. A. MARTIN, JR.*

LOADED cable continues to be an important factor in the telephone industry's aggressive program for the upgrading of voice transmission. Economies in loading materials and methods are, therefore, of timely interest: For example, a new design of loading coil cases and a unique method of packaging loading coils. The objective is to make more efficient use of plant installation labor, and to conserve capital by investment in coils on the basis of current needs.

The generally accepted practice for loading a cable is to install loading coil cases containing sufficient load coils to meet initial requirements, and including spare coils to allow for future plant expansion. This is done partially because of additional splicing labor costs, plus the cost and inconvenience of a second or third loading coil pot at each of the original loading points. Each time a cable is opened for a new splice there is the possibility of service interference. With the recently developed method of packaging loading coils a new approach to loading can now be considered for many loading projects.

It is believed that the methods of packaging loading coils and their assembly in housings as described herein are unique in the Independent field, if not in the industry as a whole.

Cook Electric Co., Chicago, has recently designed and manufactured new loading coil cases in which *clusters* of completely *encapsulated* coils are assembled. The cases are designed for the anticipated maximum number of coils required at each load point, but are furnished with only enough coils to serve for a reasonable period of growth instead of for the ultimate requirements. These cases are designed for 50, 100, 150 and 200 coils. By comparison with many recent types of loading coil containers the new cases are considerably smaller.

The new method of encapsulating loading coils in clusters makes it feasible to assemble the coils in cases which can be opened safely and economically for the purpose of adding coils as required. Voice frequency loading coils with inductance values of 44mh and 88mh are assembled in these cases. (*See Figs. One & Five.*)

This can be the means of deferring the investment and annual charges for coils until they are actually needed. Other savings can be realized by the elimination of additional splices, which would be necessary if new load pots were required at the original locations. With coils properly impregnated and encapsulated for mechanical, electrical and moisture protection, it is now feasible to install loading cases with only enough coils to meet current needs and with sufficient capacity to house the ultimate number of coils required.

The coils are encapsulated as unit clusters of 5 or 10 coils. The clusters are so designed that they can be assembled on threaded rods within

*Mr. Ruggles is chief engineer and Mr. Martin is engineer of the Wirecom Division, Cook Electric Co., Chicago, Ill.

the case. The rods are securely welded to the top cover. The plastic insulated copper wire leads are brought out through the encapsulating material so that the junctions with the coil windings are protected against moisture. The coil clusters include magnetic shields for prevention of crosstalk.

When adding coils in the field, the coil lead wires will be spliced to the stub cable conductors in an approved manner. Additions to the 100, 150 and 200 coil capacity cases can be made in complete clusters of 5 or 10 coils.

The five (5) coil cluster and ten (10) coil cluster have common mounting holes and can be used in any combination, but to take full advantage of the ultimate case capacity it would of course be necessary to use the same size cluster as furnished originally. For the 50 coil case each coil cluster contains only 5 coils. Clusters of 10 coils are assembled originally in the 100, 150 and 200 coil cases. (*See Figure Two.*)

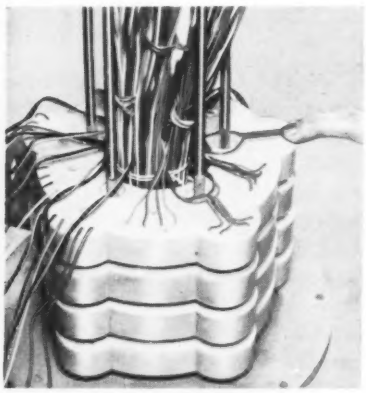

FIG. TWO: — Coil clusters are placed on rods inverted in the factory for convenience of assembly. Stub cable is inserted through the center of the clusters. Unterminated pairs are spliced through in the case.

The high dielectric strength stub cable included in the assembly, is inserted into the case through a nozzle welded to the cover. A pressure proof seal at the stub nozzle will prevent loss of air or gas from the pressurized cable being loaded. It will also prevent entrance of moisture into the case via the exterior of the stub. The case cover is secured by five (5) stainless steel bolts which clamp a neoprene gasket between the cover and the case flange, thus providing a complete seal. (*See Figure Three.*)

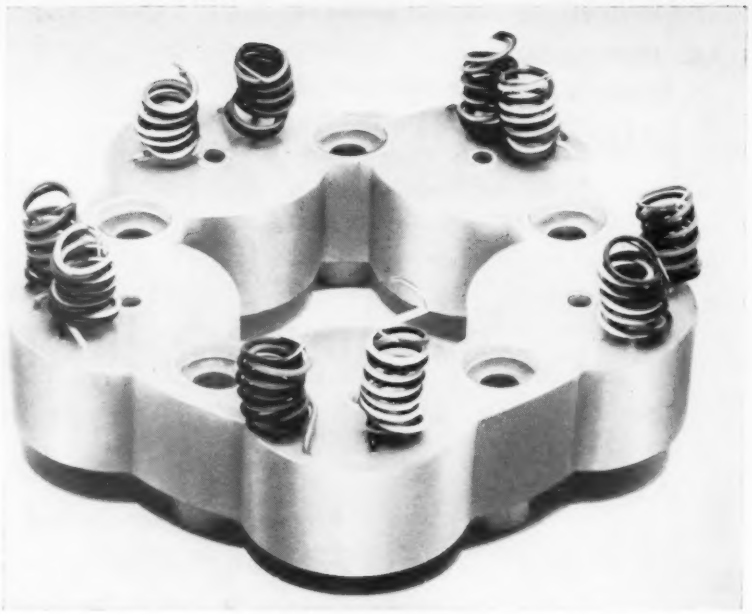

FIG. ONE: — Cluster of 5 encapsulated coils. Lead out wires are color coded plastic insulated copper. The junction with the coil winding is encased to protect it from moisture and for mechanical strength.

The cable stub will always contain sufficient pairs to care for the maximum number of coils which the case will accommodate. In a partially filled case the unterminated stub pairs are tied off in groups so as to be easily identified. The IN and OUT conductors not originally connected to coils are spliced through the case and are included in the cable splice.

The full count of the stub cable is, therefore, connected through the cable splice either through loading coils or just loops through the case. When coils are to be added to the case the loops can be cut and the wires connected to the coils. The spare conductors are all sufficiently long to allow for connection to any future coil cluster in any sequence of pair loading. The color coded stub conductors identify the pairs for proper sequence of connection to the new coils. The coil leads are color coded so the IN and OUT conductors can be recognized. (*See Fig. Four.*)

The cases are given a long lasting, protective finish. They are suitable

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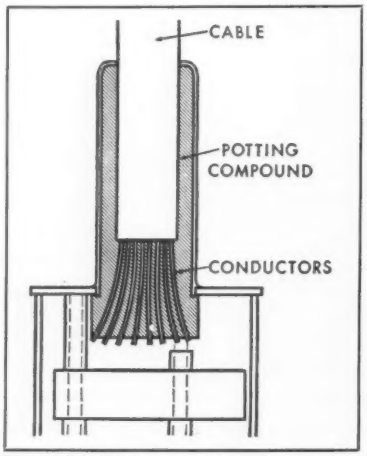

FIG. THREE: — Sketch showing cable nozzle and pressure block.

FIG. FOUR: — Unterminated pairs tied off in groups for easy identification.

A TELEPHONE ENGINEER
AND MANAGEMENT REPORT ON

ANCHORING

Modern Techniques Help Answer Question: How Much Can A Guy Anchor Hold?

DEVELOPING
HOLDING
POWER

Anchoring of telephone company poles and structures is becoming increasingly an exact science as more and more is being learned about how anchors develop their holding power.

By W. L. HOLLANDER and RAY MARTIN*

HOLDING power and creep of a guy anchor buried in soil can be explained fairly accurately by principles that might be called "earth dynamics." A well-tamped anchor can creep only as the soil restraining its motion flows under enormous pressure out and around edges of the anchor to fill in the void below the anchor caused by its motion. In other words, movement of anchors in soil under tension can be compared with movement of objects in an extremely viscous fluid.

Applicability of this principle has been indicated many times in field tests when anchors installed with voids on their undersides have crept under much lower tensions than have anchors installed under identical conditions but with no voids. While it has been impossible to apply quantitative measurements from the field of dynamics to anchors as yet, these concepts can be most helpful in visualizing anchor characteristics.

Weight-Of-Cone Principle Now Outmoded

ONE OF the first principles in calculation of anchor holding power to be questioned through use of the earth-dynamics concept was the theory that pull-out tension depended upon weight of an inverted cone of earth with the anchor as vertex and surface of the ground as base. The inverted-cone-of-earth theory predicates that anchor holding power will increase with increase in setting depth. However, in practice, an increase in depth may result in an in-

TABLE ONE.

CLASS	DESCRIPTION OF SOIL	PROBE VALUE
1	Solid Bed Rock	------
2	Laminated Rock; Slate; Schist; Sandstone	------
3	Shale; Broken Bed Rock; Hardpan; Compact, Clay-Gravel Mixtures	Over 500 in.-lbs.
4	Gravel, Compact Gravel and Sand; Claypan	400-500 in.-lbs.
5	Medium-Firm Clay; Loose Sand and Gravel; Compact Coarse Sand	300-400 in.-lbs.
6*	Soft-Plastic Clay; Loose Coarse Sand; Clayey Silt; Compact Fine Sand	200-300 in.-lbs.
7	Fill; Loose Fine Sand; Wet Clays; Silt	100-200 in.-lbs.
8**	Swamp; Marsh; Saturated Silt; Humus	Under 100 in.- lbs.

*Includes areas only seasonally wet with slow drain as in fairly flat terrain.
**Install anchors deep enough, by the use of extensions, to penetrate a Class 5, 6, or 7 underlying the Class 8 Soil.

Mr. Hollander is senior project engineer-anchors, A. B. Chance Co., and Mr. Martin is the A. B. Chance Company's chief engineer, line construction materials.

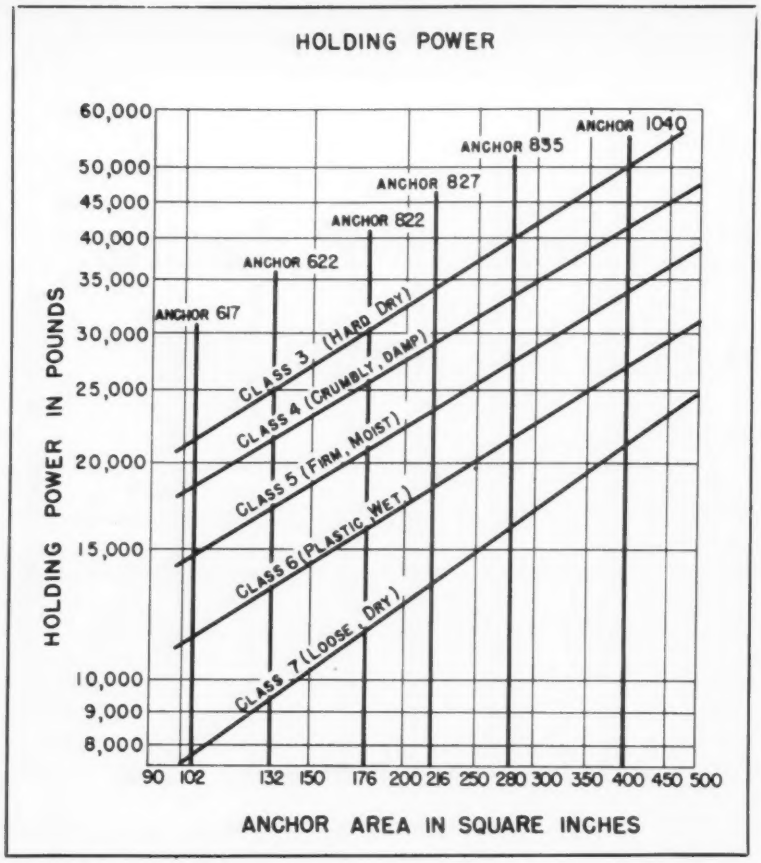

FIGURE 1-A: — Holding power of an anchor depends both upon its size and viscosity of soil in which it is installed, according to earth-dynamics theory. In Figures 1-A, 1-B, 1-C and 1-D, allowable loadings on various sizes of four common types of anchors are plotted against classes of soil graded according to viscosity. Rated loading in each case is that sustained with total creepage less than four to six inches. Fig. 1-A shows holding power of Never-Creep Anchor.

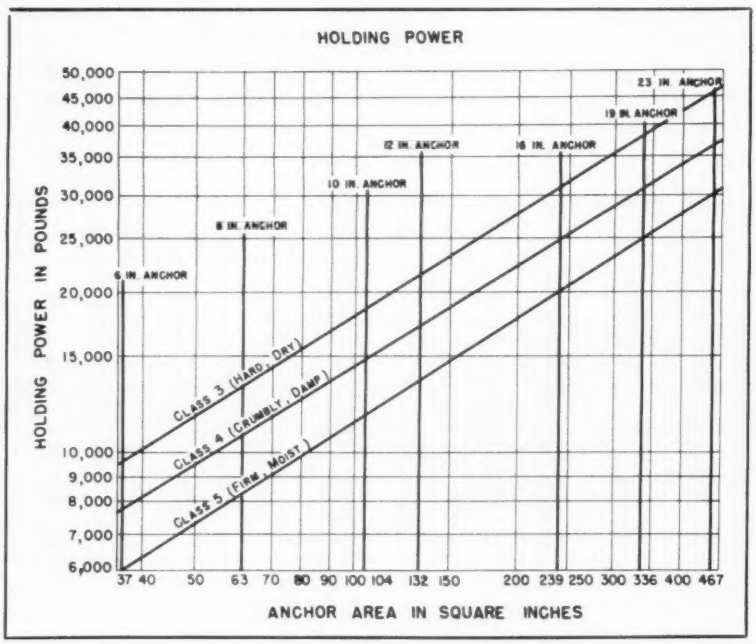

FIG. 1-B: — Holding power of cone anchor.

crease; in no change; or in an actual decrease of holding power.

Viscosity of the soil should be the major factor in determining holding power and creep of an anchor if the new philosophy were correct. Fortunately for the new theory (and for the practice of anchoring as well) this has proved to be the case. A whole new method of evaluating holding power and creep of anchors has been evolved, based upon viscosity of soils in which they are buried.

Soils have been classified, as shown in *Table One*, into eight types depending upon their viscosity, and holding power of anchors determined for each class of soil. Thus, an anchor that might develop 25,000 pounds of holding power in class-3 soil or hardpan could hold perhaps 10,000 pounds in dry, class-7 sand. *Figures One-A, B, C, and D* show how rated holding power of typical anchors varies in soils of different classes.

Correlation of anchor holding power according to soil viscosity classification has been proven by many tests where anchors have actually been loaded and creep has been measured. It has been found that so long as two feet of a particular class of soil lie over the anchor when it is installed, holding power of the anchor remains within rating for that class of soil. This is so even if strata of other soil classifications are above or below the stratum where the anchor is located. In all cases, the anchor should be set deep enough to avoid variations due to seasonal change.

This emphasizes importance of knowing general soil conditions when a group of anchors is to be installed or of determining soil classes at various depths at specific locations where particularly important anchorages are to be made.

Thus, there might be an overlay of four or five feet of damp, marshy soil of Class 7 or 8 over a much firmer soil of Class 5 or 6. Installing the anchor just two or three feet beyond the more fluid soil into firmer soil could, in some cases, double its holding power. On the other hand, an extra few feet of anchor depth might

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take it well into a softer stratum and thus reduce its holding power.

Core drilling or a new earth probe recently made available can give accurate readings of soil characteristics and holding power. The earth probe measures torque required to twist an earth bit into the ground. Correlation between torque required and class of soil has been established with considerable accuracy so that holding powers of anchors at depths tested are assured.

The earth-dynamics theory also points out necessity for well-tamped backfill. Even the most dense of soils degrade several classes if backfilled carelessly. Soil measurements have little meaning if a column of soft soil extends from anchor to surface of the ground.

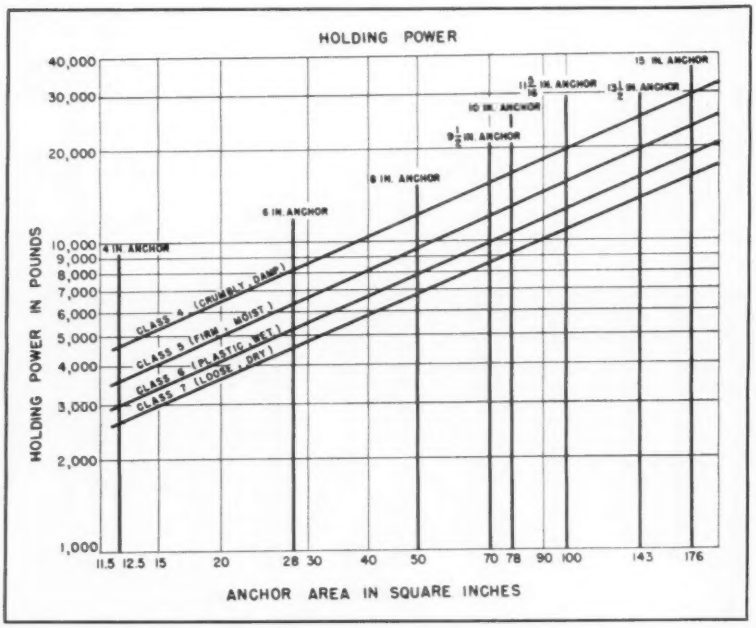

FIG. 1-C: — Holding power of machine-installed anchor.

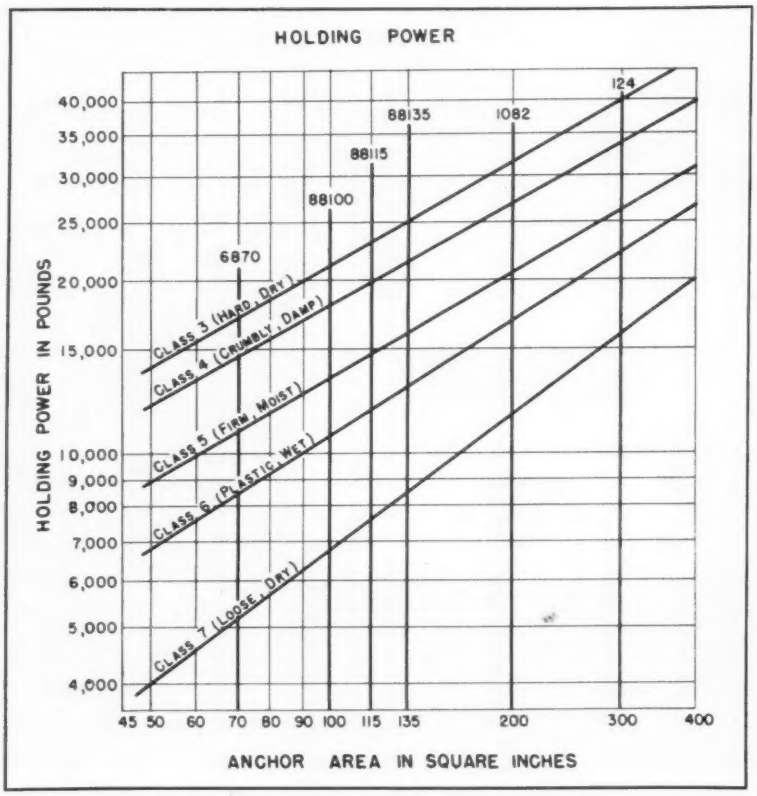

FIG. 1-D: — Holding power of expanding anchor.

Creep And Pullout Forces

ANOTHER old idea, now abandoned, was that force required to pull an anchor completely out of the ground was a measure of anchor merit. It is true that a well-designed, large anchor properly installed will require more force to pull it out of the ground than will a small or improperly installed anchor. However, the damage is done by a shifting anchor long before it emerges from the ground.

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Merit of an anchorage is provided in the first 4 to 6 inches of creep. Beyond this point structures pull out of line and conductor spans sag to a point where the anchor can be considered to have failed even though it may still be far below the surface of the ground.

Field tests have established creep-vs-time characteristics of properly-installed anchors, as shown in *Figure Two*. It has been found that once anchor guys have been stressed at some 2000 pounds to compact the earth and to set or bed the anchor, additional creep under load diminishes rapidly with time until a plateau is established for any given loading within the rating of the anchor. Creep beyond this point is negligible.

If loading is now increased considerably but within rating of soil and anchor, a small amount of additional creep will occur but equilibrium will again be established at a new plateau well within limits of tolerable creep.

Measurement of effective creep of

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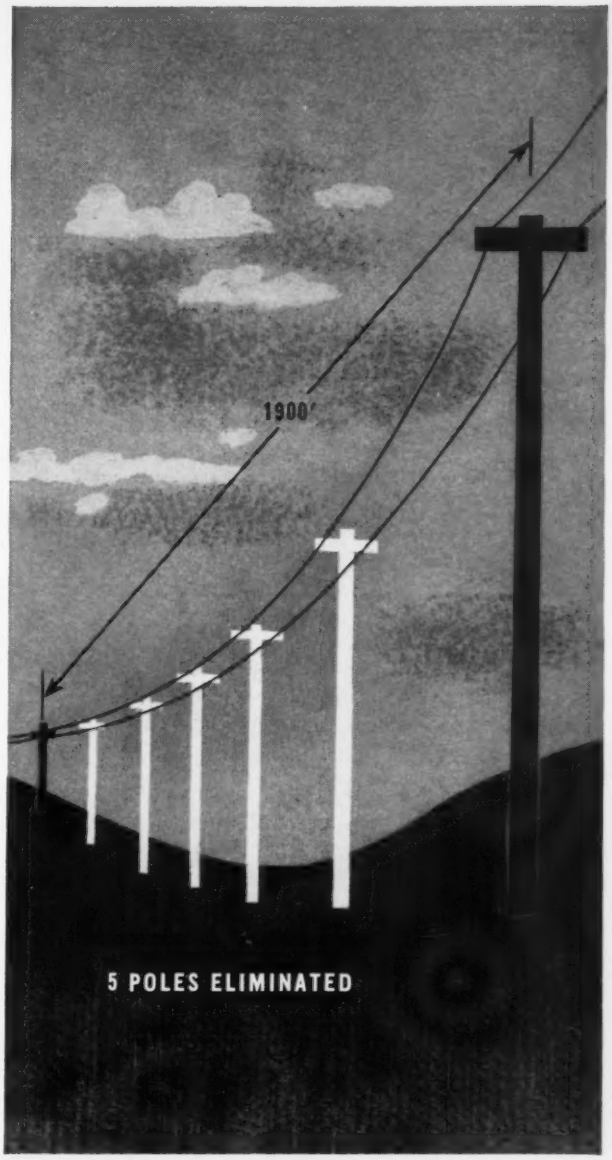

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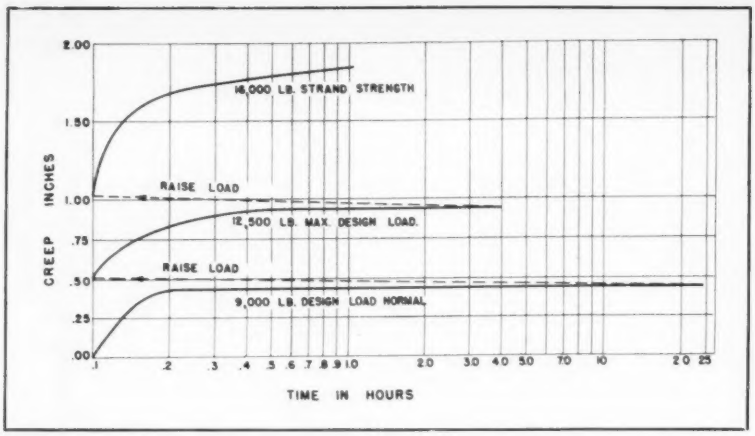

FIGURE TWO: — These tests show that creep of an anchor occurs in first few minutes of loading after which anchor establishes equilibrium as soil compacts. Tests were made on a 143-sq.-in., power-installed screw anchor installed in class-6 soil at 45 degrees. Rated ultimate holding strength of this anchor in class-6 soil is 17,000 lb.

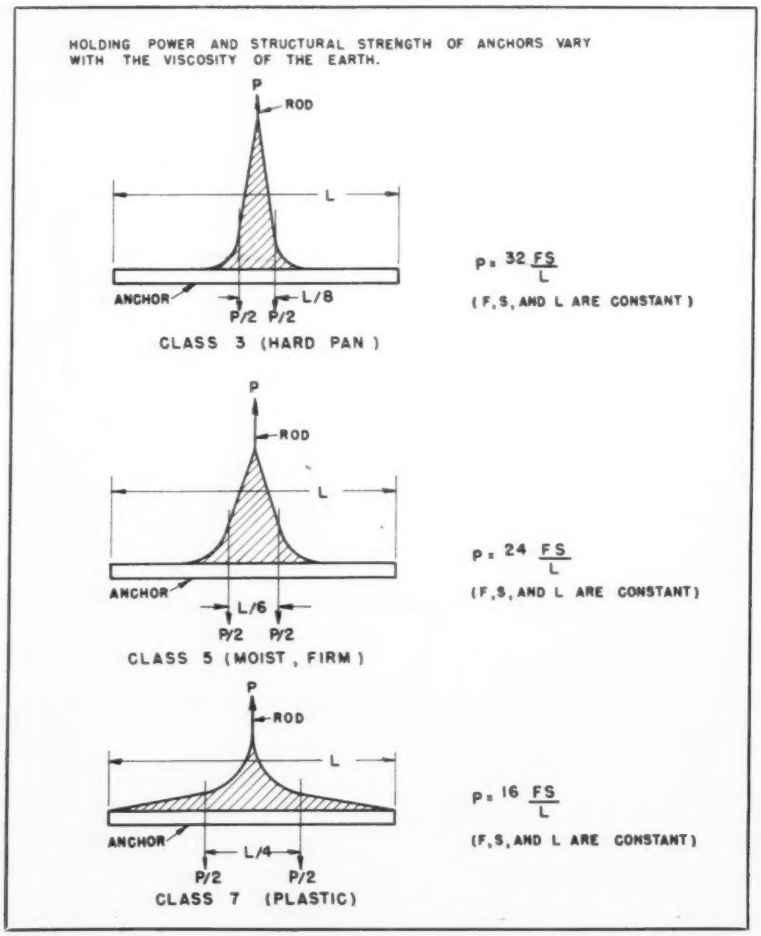

FIGURE THREE: — Ultimate strength of an anchor itself is reached at lower loadings in soft soil than in hardpan. Illustration shows how effective lever arms of earth-reaction forces are short in hardpan, keeping bending moment and maximum fiber stress to a minimum. Soft soil flows along the surface of anchor, increasing length of lever arms to centers of gravity of earth-reaction forces, which, in turn increase bending moment and fiber stress. Anchors are designed for ample strength in all working conditions in any type of soil.

an anchor at rated maximum working load thus provides a far more realistic evaluation of anchor merit than does determination of pull out strength.

Ultimate Strength of Anchors

A CURIOUS fact in connection with ultimate physical strength of anchors has become evident as test data has accumulated. It now becomes apparent that viscosity of the soil has just the opposite effect on ultimate strength of anchor structures as it does on their holding power. The more viscous the soil, the higher becomes ultimate strength of an anchor itself before physical damage is received. Formerly, before soil viscosity was considered, an anchor that received physical damage at low total load was automatically considered defective.

The old idea was that unit loading on an anchor would be uniform over its entire surface. Under this theory, structural failure should always occur at the same load since bending moment equals section modulus times extreme fiber stress.

But, under the earth dynamics theory, unit loading over the surface of the anchor should vary because of earth flow. While it is impossible to observe soil motion in the ground during a pull test, there must be a flow of earth over edges of the anchor from the loaded side to the back, or unloaded side of the anchor. Effect of this flow is to shift centroid of the earth resisting forces away from point of application of load at the rod toward outside edges of the anchor.

It has been proven that the rod will fail without damage to the anchor in most pull tests on anchors in hard pan. This is because bending moment on the anchor in hard pan for a given load on the rod is low since hard pan is highly viscous and reactions by the earth are centered close to the rod as shown in *Figure* 3(*a*).

But as soil becomes less viscous, as in plastic clays, reaction points in the resisting earth shift outward, increasing effective moment arms, and the load which produces maximum

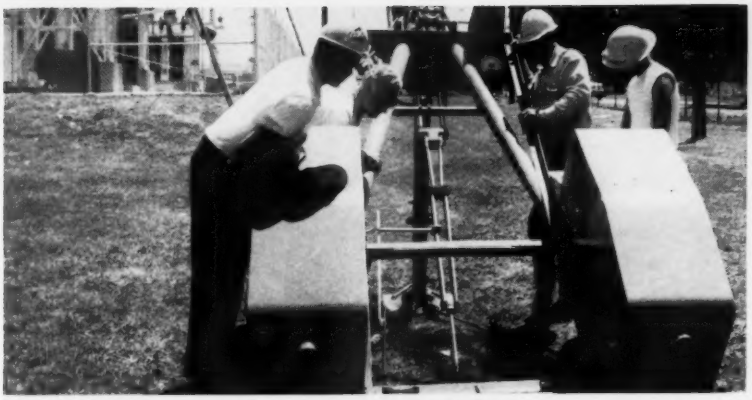

FIGURE FOUR: — This Chance portable hydraulic anchor-test machine has been used in checking holding power of hundreds of anchors. Holding power and creep are measured simultaneously.

or destructive bending moment is reduced. This is shown graphically in *Figures* 3(*b*) and 3(*c*).

Anchors are designed to be amply adequate for actual working conditions. Thus, limitations due to structural strength of anchors are of academic interest only since, for a given type of soil, loads would be limited by maximum allowable creep which would occur far before ultimate strength of the anchor itself was reached. Ultimate structural strength in an anchor becomes a factor only in pull-out tests.

Improved Co-ordination

CHARACTERISTICS of a mechanical system as a whole including sags, tensions, and deflections can be controlled more precisely for given load condition now that performance of anchors in various kinds of soils can be predicted accurately. Modern anchorage techniques and equipment that can be matched with a high degree of accuracy to mechanical design considerations of overhead structures result, not only in more coordinated systems but also in lower overall costs since over-design to compensate for unknown factors is reduced.

Result is a more reliable, less costly system, designed specifically to meet particular operating conditions. Such precise design also means lower maintenance costs over lifetime of the system. — *W. L. Hollander & Ray Martin.*

FIGURE FIVE: — This Chance Earth Probe measures torque required to twist it into the earth. Direct correlation between torque as determined by this probe and soil classification gives an accurate measure of anchor holding power at strata found at different depths below surface of the ground.

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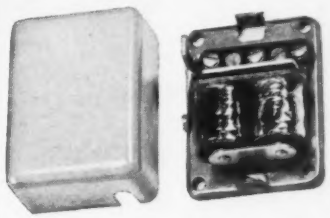

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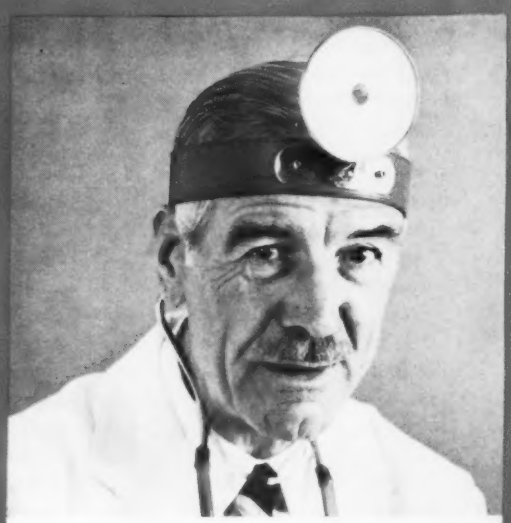

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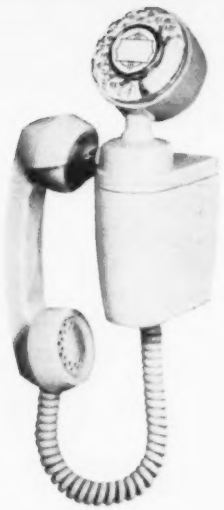

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COMMERCIAL DEPARTMENT NOTES

By ALLAN R. STACEY
Vice Pres., Sunland-Tujunga Tel. Co., Sunland, Calif.

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ADVANCE PUBLICITY PAYS OFF

Appropriate publicity for your "Open House" involves: (1) stories and advertisement in the local press; (2) a "mass" mailing to "occupant" of every residence in the community; (3) payroll-insert letter inviting employes and their families; (4) posters announcing the open house; and (5) radio spot announcements.

IN THE last issue of TE&M we talked about how to conduct an open house. We discussed some of the things to watch for in giving a program for the public to tour your telephone company premises and had just finished discussing signs. Now let's get into the matter of publicity.

Naturally, appropriate publicity should be given in the local press in advance of the open house. Newspaper advertising should run for three weeks. We found that it was wise to save your biggest newspaper spread until just a few days before the open house in order to have the greatest impact.

A mass mailing was made to "occupant" of every residence in the community at a very inexpensive cost considering the distribution. An invitation letter was sent to each stockholder, to representatives of other telephone companies and suppliers, and to service clubs and other community organizations.

A payroll insert letter was written from management inviting the employes and their families. Letters were sent to principals of junior and senior high schools inviting a visit by a complete class at one time.

Posters were placed in stores and banks. Billing envelopes for two months preceeding the open house contained an imprint on the outside of the envelope inviting persons to come to the open house. Local theatres were given a trailer film inviting members of the public at the show to attend the open house.

Radio spot announcements were used *during* the first two days of the open house and it might be advisable to use them for a day or two immediately *before* the open house. Signs advertising the dates of the open house were displayed on company vehicles and large banners were placed on the company buildings. On the actual days of the open house an additional banner was placed which read, "Open House Today." During the evenings of the open house searchlights were placed on the front parking lot to call attention to what was going on.

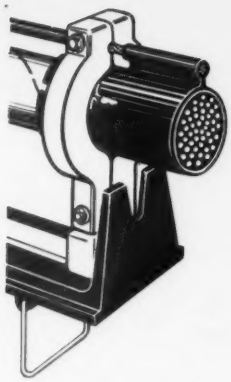
Giveaways included match folders, pencils and shopping bags. Drawings were held every two hours for free installation of a colored telephone. Alternating with the color telephone drawings additional drawings were held for free long distance calls (within the United States only).

Routing Of Visitors

ADVANCE planning determined precisely what tour route was to be taken in order to give the public a quality presentation without going through every section of the premises. It was decided that a receptionist would meet the visitors as they came in and attempt to group them by approximately 12 persons per group.

After reception by the hostess and the signing of cards for drawings, a guide would take the group and begin to lead them through the tour. Naturally, these guides were given prior training in order to know what to say and what to expect in the way of problems.

At stops where explanations might be more elaborate than usual, a stationed lecturer would give information to the visiting group. These lectures were in simple and non-technical language in order that the public



Cross section showing tri-function clamp for both cable and strand.

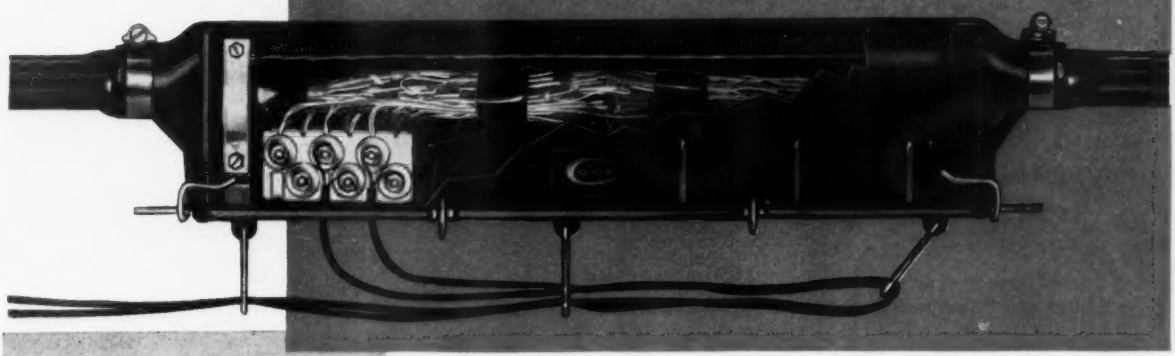
Available Now!

COOK

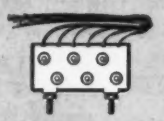
SPLICE COATS

for

Figure "8" Type Cables



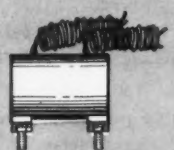
COOK TERMINAL BLOCKS AND LOADING COILS



Six pair unprotected type terminal block.

Three pair protected terminal block with Minigap Arresters.

Six pair washer gap protected terminal block.



Three pair 88 mh Hi-Fi loading coil assembly with color coded insulated lead wires.

Featuring:

- Tri-function clamps that provide shield continuity through the splice, bonding of shield to strand at each cable opening, and support for the entire splice coat and termination equipment.
- Straight through installation features for cable and strand.
- Standard terminal block mounting facilities.
- Adaptability to lashed cables when modification kit catalog number 81-410 is used.

See Your Local Distributor

COOK ELECTRIC Company

Since 1897

2700 Southport Avenue Chicago 14, Illinois

might easily understand. Further, the guests were invited to operate simple pieces of equipment.

Among the most popular types of equipment was a playback telephone where a guest could hear his voice as he had spoken a few seconds before. A second feature of great interest to the public was a TV camera and reception set which permitted each guest to see himself on television.

In our company's presentation modern office space was shown as well as equipment and tools. A question and answer time was held at the end of each tour and each guide had the responsibility of reporting any questions he was unable to answer so that follow-up might be made. Further, each guide and each lecturer carried prospect cards to record for subsequent contact any visitor who asked about additional telephone service.

Personnel Required

IT APPEARS to me that the best way to organize your own personnel for such an event is to have a working committee with a representative from each department, preferably department head in many companies. This committee then works out how many employes will come from each department to act as guides or lecturers or do whatever else is necessary.

Believe me, there are many necessary things in conducting an open house clear down to the question of who paints the signs and where you obtain the milk and cookies for refreshments without cost to the company. Then, too, it is better for each department to participate in the planning for this event than for the entire program to be laid down from above by management.

Display Materials Or Exhibits

AT VARIOUS stages during the tour, charts of company growth can be displayed and of particular interest to the public are pictures showing older buildings or older offices in contrast with pictures of today's plant or equipment. Photographs of unusual events in the life of the community or of the employes are also interesting. Large blowups of company advertising are very helpful as are enlargements of such things as service orders and billing forms.

Most certainly, a sales display should be made of all the items of service available to the public. If possible, this should be in such a form that it can be handled. Guests always like to operate pushbutton telephones or other devices. Some companies have made excellent usage of topographical maps of the exchange or community.

Under this heading we need also to consider identification tags for employes who act as guides and lecturers. Their names should stand out clearly on each lapel card. Further, we need identification signs for the major pieces of equipment that will be seen by the visitors. In the event that you plan to give door prizes, tickets will be necessary and they certainly should be in a form appropriate not only for use in a drawing but also for follow-up by your sales people.

Instructions for guides can be mimeographed or you can follow the procedure of giving very careful and explicit training to two or three guides and then having the remaining guides go first with these well-trained two or three.

Refreshments

THERE ARE two schools of thought on whether to give out refreshments but in my opinion if these can be made available at the end of the tour without too much expense to the company, they are certainly worthwhile. In our own case we gave out coffee and cookies and milk, all provided without cost by local business people. You will need a plan of maintaining an adequate supply of refreshments without over purchase or under purchase. This also applies to paper cups or plastic containers for the drinks and large waste containers for their easy disposal. Further, you will need plans for simply keeping the refreshment area neat and clean.

"How high do you plan to go?"

Miscellaneous Facilities

THERE are many things for consideration under the miscellaneous category but let me give you just a few. First off, we need a convenient and large reception area for people to gather before they start on the tour. We need to provide as much parking space as possible and in this connection we shall probably request that employes park at some distance from the premises for the days of the open house.

We shall want to consider safety precautions and how to handle trips up and down stairs for elderly people and to be sure that a supply of first aid materials are convenient and that company personnel know where to find the first aid kits quickly.

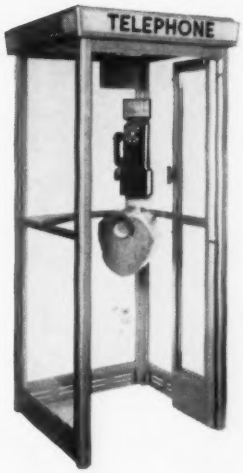
Brochures advertising the company's products should be placed at appropriate spots and be given to the public wherever possible. It probably would be wise for distinctive badges to be available for company executives involved in the open house. You will need to think about a public address system for announcements or possible piped music.

Recognizing that people like to use cigarettes, we should plan on "No Smoking" signs where needed and make ashtrays available where smoking is allowed.

You may wish to arrange for peg count of visitors and this can usually be done by having someone at the beginning position of the tour handle the peg count meter.

You will certainly want a dress rehearsal for the guides and lecturers and for the latter an advance prepa-

PROVED
BEST for ease of maintenance



A combination of glass, enamel, anodized aluminum and simplicity of design keep maintenance problems to an absolute minimum.

the B N Booth

For full particulars, consult your distributor or write direct ...
Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.

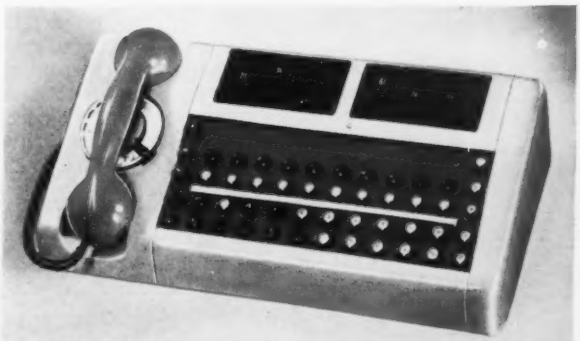
a B-N booth is a busy booth!

Only one pair does the job!

A SINGLE PAIR OF WIRES IS ALL YOU NEED FOR FAST, COMPLETE NIGHT SERVICE AND AFTER-HOURS ANSWERING WITH USI'S

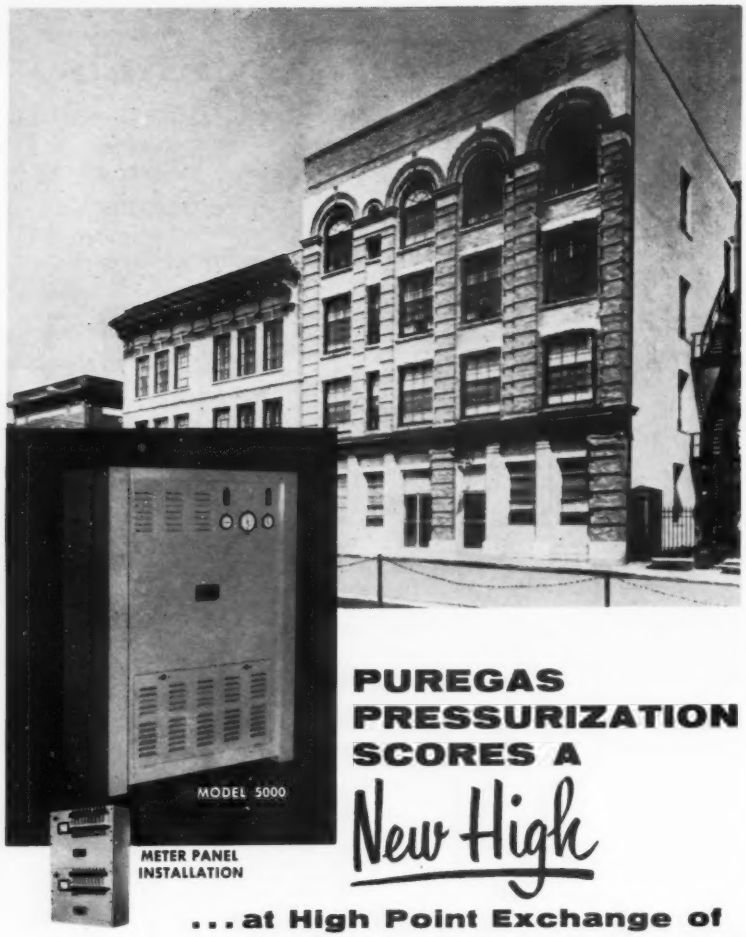
TYPE 30 PABX

Get this advantage PLUS many other EXTRA features as standard equipment when you buy ... PABX by USI



UNITED STATES INSTRUMENT CORPORATION

CHARLOTTESVILLE, VIRGINIA



METER PANEL INSTALLATION

PUREGAS PRESSURIZATION SCORES A *New High*

... at High Point Exchange of North State Telephone Co.

High Point, North Carolina is one place where "high" does not necessarily mean "dry". With severe summer storms drenching the area in driving downpours, engineers and maintenance crews of the North State Telephone Company faced the tough problem of "wets" and lightning-caused failures. These heavy showers often caused as many as 15 to 20 separate disruptions along the some 275-odd miles of underground and aerial cable belonging to the High Point Exchange.

Three months after installing Puregas refrigerator-compressor pressurization equipment, North State engineers report.... **"service affecting troubles have been greatly reduced. We now average only about one or two troubles—sometimes none... Roughly 75 to 80 percent of our cable troubles due to moisture and water have been eliminated... even now the pressurization system has almost paid for itself from a maintenance and protection standpoint."**

For full details on how Puregas pressurization equipment is now effecting up to 85% service improvement in more than 6,000 exchanges around the world, send for the complete Puregas catalog.

PEC **PUREGAS EQUIPMENT CORP.**
578 Oak Street, Copiague, L. I., N. Y.

ration of the subject matter they are to discuss, not necessarily the language, but certainly the topics. You may want flowers for your hostesses.

You will need to plan for cleanup of building and grounds before the public comes; and set up of displays and signs.

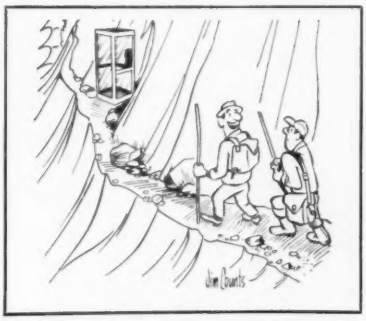
Follow-Up

UNDOUBTEDLY, you will want to consider thank-you letters to certain people who assisted you in the open house or made particular comments. You will also want to summarize the activity in terms of its productiveness and constructive suggestions for improvement the next time such an event is held. Finally, you will want to analyze the reactions of visitors and guide the company's course in light of the criticism both constructive and destructive that might be received.

Budget

INTO the budget for an open house program should go preplanned amounts for refreshments, decorations, printing of displays and signs, printing of identification cards, overtime hours by employes, mailing expenses including postage, refreshment expense and many other small items. You should recognize in advance that a well presented open house program will cost between $1.00 and $2.00 per person going through the tour. While this may sound high, it is certainly most fruitful from a company's public relations point of view.

That's enough about open house for now. If you have any questions, please drop me a line and I'll do my best to give whatever additional information you require. See you next issue. — *Allan R. Stacey.*



"Nothing like getting away from civilization, eh Charlie?"

PLANT ENGINEERING NOTES

By JOHN S. REED
Technical Editor, TELEPHONE ENGINEER & MANAGEMENT

New Automatic Recording Instrument

NEW IDEAS AT WORK

- New recording instrument features electronic code which permits user to change his recorded announcement and play back all messages which have been recorded from any telephone.
- Protective coating halts ladder abrasion and splintering.

Versatile, Remote Control Telephone Recording Unit

A VERSATILE type of automatic recording instrument has been developed for use on telephone lines. Through the use of an electronic code which is controlled only by the user, this instrument, which is called "Code-A-Phone," enables the user to change his recorded announcement and to play back all messages which have been recorded from any telephone.

The Code-A-Phone instrument, illustrated in *Figure One*, is a fully transistorized telephone dictating recording and answering machine, which is built as a compact unit in a neatly designed case. The transistor equipment operates only when a call comes over the telephone line. This particular feature is stated to provide the advantage of longer life with minimum of servicing.

FIG. ONE: — Model 500 Code-A-Phone telephone answering and recording machine.

The remote control features of the set enables the user to operate the unit according to his own individual needs. Through this control feature he is able to control his office telephone from any other telephone.

The Code-A-Phone has a unique tape cartridge system which records all messages and orders up to 90 minutes in length. The removable tape cartridges can be replayed as many times as required and even filed for future reference. Alternatively, the cartridges may be reused over and over again. The sound quality of the tapes is said to be excellent even after the messages have been recorded, erased and re-recorded.

The Code-A-Phone instrument may

AIRLINES use ELECTRONIC SECRETARY sets for speeding reservations—reconfirming—handling peak business.

DEPARTMENT STORES use the ELECTRONIC SECRETARY set to take orders—offer shop-by-phone service.

PACKING PLANTS use batteries of ELECTRONIC SECRETARY sets to take salesmen's orders—speed daily deliveries.

BIG business and SMALL business...

with ELECTRONIC SECRETARY® *telephone*

One-man shops or thousand-man organizations—they're all prospects for the revolutionary new ELECTRONIC SECRETARY® automatic phone answering sets.

With it, small firms now get the calls they used to miss when the phone went unattended – now profit from business that used to go to the next name in the Yellow Pages. And some of the biggest "name" companies in America use multiple ELECTRONIC SECRETARY sets to man order-taking departments, make announcements, cut clerical costs.

In any case, you'll find just the right ELECTRONIC SECRETARY set to meet any customer need: an AO (Answer Only) model for giving prerecorded messages – an SP (Short Play) model that both answers calls and takes up to twelve 13-second messages – an LP (Long Play) model that virtually "does everything."

So, as you can see, almost every commercial customer in your area can profitably rent an ELECTRONIC SECRETARY set – now featured in national advertising. To start cashing in on this big, new unrestricted profit opportunity, call or write one of the distributors listed at the right.

RADIO STATIONS use ELECTRONIC SECRETARY sets to inform callers of special broadcasts. Also after hours, to instruct callers that station is closed till morning.

REALTORS use an ELECTRONIC SECRETARY set to take calls while they're out showing homes.

DOCTORS and DENTISTS use an ELECTRONIC SECRETARY set to avoid interruption while with patients—give an emergency number after hours.

mean MORE business

answering sets

Electronic Secretary Industries, Inc., Subsidiary of GENERAL TELEPHONE & ELECTRONICS

Distributed by

AUTOMATIC ELECTRIC SALES CORPORATION
400 North Wolf Road Northlake, Illinois

LEICH SALES CORPORATION
427 West Randolph St. Chicago 6, Illinois

also be used as an office dictating machine by means of the cartridge tapes and transcription machines are available for the use of the stenographer in transcribing the tapes. This feature eliminates the need for a separate office dictating machine and makes it unnecessary to take a dictating machine home or on business trips.

When the user is in another part of the city or in another town and he wishes to call into his office and leave an announcement on the Code-A-Phone instrument for his callers to receive, a remote control signal enables him to place the announcement and dictate it on the machine from the outside telephone. He may change his announcements as often as he wishes.

The method of actuating the Code-A-Phone instrument from a distant telephone depends on the particular type of instrument. On the Model "300," after dialing his own number to call the machine, from a distant telephone and listening to his own answering message, the user will hear two tones. He then dials his secret four digit code number (each machine will have a different code number). Two tones will indicate that the user has given the proper code. He may then record a new answering message at the same time that the original message is being erased from the tape.

The Code-A-Phone instrument will play back recorded messages left by callers. Their remote signal enables the user to hear all recorded messages when he calls in from outside telephone. Each time he signals for the messages, he hears only the new messages left since his last call.

The machine is capable of transmitting a pre-recorded message or reports to another person or similar instrument in another location. The tape cartridge feature provides a permanent record of the complete transmission.

It is also capable of recording orders from customers and salesmen, thus reducing the need for telephone order takers. The office stenographer can transcribe orders directly to business forms from the machine. The Code-A-Phone also can monitor incoming calls so that the user may interrupt the machine and talk directly with the caller if he so wishes. A built-in speaker enables the incoming voice to be heard, in addition to the recorded announcement.

The machine can record conference calls including all incoming and outgoing conversations. Each office that has a Code-A-Phone instrument has an immediate tape cartridge recording of the complete conference which can be transcribed or filed for future reference.

As a result of research and development for over five years, the Code-A-Phone instrument is now in production on Models 200, 300, 500, and 600 with the Model 800 becoming available around the first of the year (1961).

The Model 200 is a basic unit designed to answer the telephone with the users' recorded announcements which can be changed as often as necessary and is used primarily where it is not necessary to record incoming messages. The Model 300 plays a recorded announcement for incoming calls and has a remote control feature to enable the user to call in from distant telephones and change the recorded announcement as often as desired. The Model 500 is equipped with 60 or 90 minute tape cartridges for auxiliary use as a dictating machine in the office or from a distant telephone. The Model 600 is a recording and answering device that answers a telephone, plays recorded announcements, records all incoming calls — and also records all voices on a conference call. It is also capable of operating as a dictating machine. It is equipped with a loudspeaker monitor system for monitoring calls and also provides instant play back on recorded calls. The Model 800 is an improved version of the Model 600.

FIG. TWO: — New type of ladder equipped with protective covering on side rails and rubber sling device at top. The protective covering protects ladder rails from splintering and abrading in ladder racks on trucks and the sling enables the ladder to be used on a pole without rocking. (Industrial Ladder Company)

New Features Make Ladders Safer

LADDERS used in telephone service are subject to a form of wear that is difficult to control. For years telephone men have been complaining about the tendency of their ladders to abrade and splinter from contact with the carrying racks on their trucks. Various methods have been employed in an effort to solve this problem. The racks have been padded in different ways and hold-downs have been devised to lock the ladders in place in the racks with only fair results.

The rack wear comes from the continuous vibration that the ladders are subject to while the vehicle is moving. The road vibration and shock cannot be entirely removed by padding or locking the ladders in the rack. The ladders eventually show wear in places where they have been rubbing in the rack supports.

One ladder manufacturer has now developed a plastic impregnated protective coating which is applied to the edge of each rail. This impervious material is said to resist abrasion and increase ladder life. It does not require painting over. Because it is unaffected by atmospheric contaminants or extreme temperature changes, the covering is said to virtually eliminate splintering of the wood rails.

Another innovation which adds to the safety and the performance of the ladder is a rubber sling attachment which fits over the top of each rail. It functions to hold the top of the ladders snug against a pole, building corner, pipe, or other vertical

FIG. THREE: — This shows the ladder leveling device in use to level the ladder on uneven ground. Note ring that is used to restore the leveling device to normal. The foot pads shown are equipped with spikes or cleats. Hard rubber foot pads are available.

projection. It is said that, with both the base and the top of the ladder solidly set, danger of slipping or toppling is practically eliminated. The high dielectric properties of the rubber sling attachment is said to make it safe for use around electrical installations. This sling has a fabric reinforcement within the molded rubber to increase strength.

A third feature which contributes to the safety of the ladder use is an automatic self leveling device. This device consists of a coil spring within a rugged aluminum alloy tube which automatically adjusts the legs of the ladder to any uneven terrain. Its use makes wedges, blocks, bricks and shims, unnecessary for leveling the ladder and assure a solid setting.

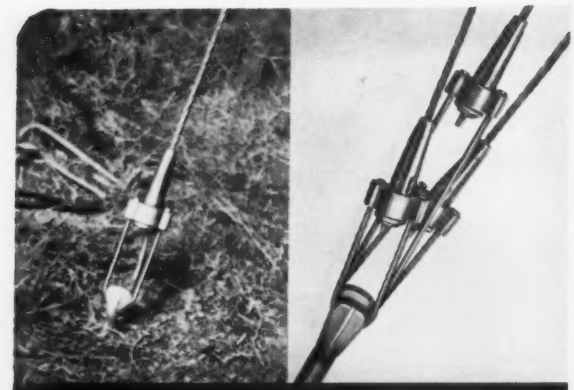
When the ladder is set up and the leveling device has compensated for the uneven ground, the bottom rung automatically sets a positive acting pin-lock when the first step is taken. The ladder remains set until the ring of the pin is pulled, returning the leg to an uneven position. This facilitates moving the ladder.

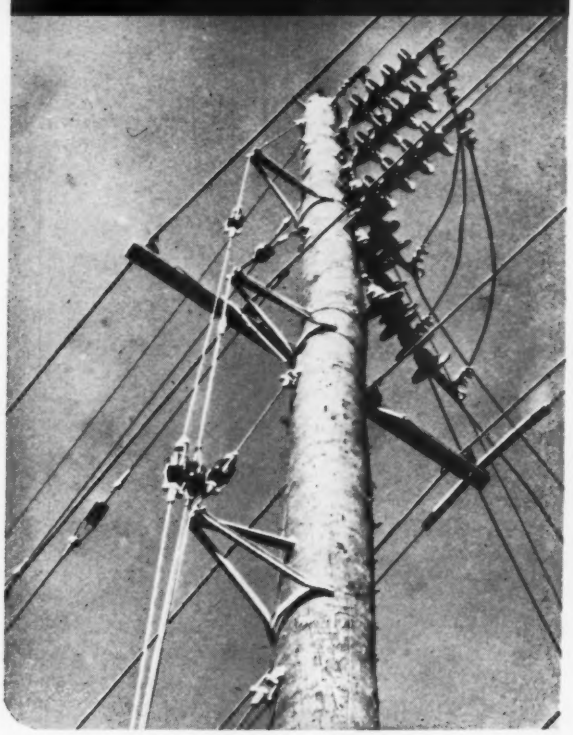
The protective covering, rail top sling, and the leveling device are available on extension ladders from 16 foot on up in length and on new combination ladders. These three features are illustrated in *Figures Two* and *Three*.

HELP

We are not sure which this attractive young lady is calling; the Police or the Dog Catcher, but we do know she chose the right installation to call from. The GP-4010 F List 3. Another winner from Gladwin.

GLADWIN PLASTICS, INC.
165 COURTLAND ST., N. E.
ATLANTA 3, GEORGIA • JA 5-5384





in a word, it's

STRANDVISEABILITY

Reliable

A Symbol of Integrity Since 1889

Strandvise® alone

has these straight-down-the-line abilities

FEED-THRU *ability*

Nothing approaches the value and ease of the feed-thru mechanical chuck for placing and tensioning a guy. Use no tensioning tools until after the guy is in place. Then each click of the hoist feeds strand thru the chuck to desired tension.

ONE-MAN *ability*

A one man "crew" can complete a down guy easier, faster and safer than with any other method. Strandvise is a "natural" even for EHS strand.

USE *ability*

No precision pre-cutting. No markers to locate and line up. No size color codes to remember.

NO-CORRODE *ability*

External—Tube and yoke are each a homogeneous aluminum alloy. There is no coating . . . scratching or abrasion cannot initiate corrosion.

Internal—Both laboratory tests and field service exposure (natural cycling) have repeatedly failed to show evidence of corrosive attack on strand within the gripping area. Tapers and initial tension wedge and seal that area.

RE-USE *ability*

Strandvise is wholly reusable; once, twice, or a dozen times.

ADJUST *ability*

Luck plays no part during the tensioning operation. Strandvise "swallows" strand with each click of the hoist—Tension is a fact.

NO-ABRASION *ability*

The stainless steel bail has no peers. There is no coating to abrade away. 18-8 stainless steel will never rust or deteriorate in any known corrosive atmosphere.

REACH *ability*

The overall length of Strandvise averages less than 12 inches for most sizes.

SAFE *ability*

No need to remove come-along or hoist to gain working space before the job is completed. With Strandvise the load is always captive.

NATURAL *ability*

Nothing to study—nothing to avoid—nothing to ("look-out!") for—wholly safe to install without safety glasses and gloves (where regulations permit).

NO-FOUL-UP *ability*

The only wire is the guy wire. The only ingenuity called for is already built into Strandvise.

PROCEDURE *ability*

Give or take guess work is no part of Strandvise—nothing to get ready, nothing to allow for. (Stainless bail cannot stretch.)

MULTIPLE GUY *ability*

Double and triple guying to one guy rod presents no working space problems with Strandvise.

TAMPER-PROOF *ability*

Mischievous release is impossible unless the "villain" has a hoist and come-along.

COST *ability*

You can use every Strandvise you buy . . . none are rendered useless by storage or handling damage, or by field mistakes.

Installed costs favor Strandvise all the way. One man for five minutes is all the "help" Strandvise needs for a *completed* down guy.

HOLDING *ability*

Forged and case hardened chucks are quality controlled at factory and are consistent by nature of design and tooling. No grit or combination of coatings to be controlled and trusted.

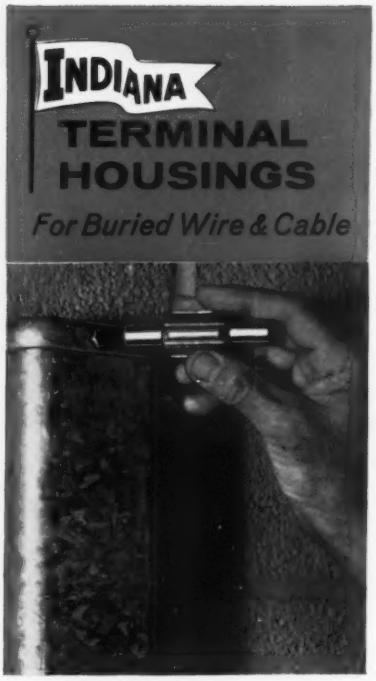
During 27 years of continuing production, it has never been reported that a Reliable Feed-Thru Deadend Chuck let go a line. (Strandvise is in its twelfth year of production.)

Reliable

A Symbol of Integrity Since 1909

RELIABLE ELECTRIC COMPANY

Franklin Park, Illinois



ENGINEERED TO SAVE YOU TIME AND LABOR

ONE screw like this is all that's required to complete the assembly of INDIANA Pedestal-Type Terminal Housings. This is typical of the time and labor-saving features to be found in these carefully engineered housings for buried wire and cable.

Made of heavy gauge steel and galvanized AFTER forming, INDIANA Terminal Housings provide long-lasting protection to terminal blocks, loading coils and/or splicer. Both pedestal and pole-mounted types, designed to accommodate from one to 400 pairs, are available.

Ask your distributor about these dependable, economical housings, or write for Bulletin No. TH-101R.

INDIANA
Steel & Wire Company, Inc.
Muncie, Indiana

"New Approach To Economical Loading"

(Continued from page 44)

for pole mounting or for wall mounting in a cable vault. When mounting, it is essential to provide clearance space below the case, sufficient to allow the bottom portion (shell) of the case to be lowered so that additional clusters of coils may be installed.

The mounted unit is supported by a bracket welded to the top of the case and secured to a separate bracket fastened to the pole or wall surface. Another support at the bottom of the case, when lagged to the mounting surface, will prevent lateral or rotary movement of the mounted case. When the shell (bottom portion of case) is removed for coil additions the top bracket will support the weight of the rod mounted coil clusters.

The first installation of this type of equipment was made at Hebron, Ind., by the Northwestern Indiana Telephone Co. Loading cases of 100 coil capacity were furnished with 50 coils included in each case. A 200 pair plastic stub (100 pair IN and 100 pair OUT) was spliced into the cable. The IN and OUT wires, not connected to the coils, were spliced in the cases during manufacture so that the 100 pairs in the cable were made continuous through the coil case.

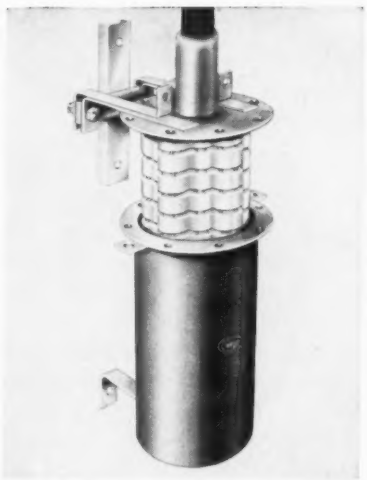


FIG. FIVE: — Loading coil case showing coil clusters assembled on rods welded to cover. Pole mounting bracket is shown. Shell dropped to expose coil assemblies.

At the time additional loading may be required in the partially loaded cable the cases can be opened so that new coil clusters can be slipped onto the supporting rods and secured by nuts. The manufacturer has made available a "re-entry kit," which includes a new neoprene cover gasket and a package of dessicant. The latter, when activated and placed inside the case before reclosing will absorb moisture which might accumulate

Co-author L. L. RUGGLES is chief engineer, Wirecom Division of Cook Electric Co.

Co-author J. A. MARTIN, JR., is engineer of the Wirecom Division of Cook Electric Co.

during the installation of new coils.

With this new facility it should now be possible to affect worthwhile economies on many of the loading projects encountered in the Independent field. The investment at any given time may be more consistent with actual needs and the annual charges which apply will be more closely related to the cost of the working coils.

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"Basic Theory and Application of Transistors." Following a general discussion on transistors and a description of the fundamental theory of transistors, this Army technical manual includes data on transistor amplifier fundamentals; parameters, equivalent circuits, and characteristic curves; bias stabilization; transistor analysis and comparison; audio, tuned, and wide-band amplifiers; oscillators; pulse and switching circuits; modulation, mixing, and demodulation; and additional semiconductor devices. The manual is designed for the electronic technician who has a detailed knowledge of the theory and application of electron tubes. 1959. 263 p. il. Catalog No. D 101.11:11—690; price $1.25. Order by catalog number from U. S. Government Printing Office, Washington 25, D. C.

"Federal Labor Laws And Agencies." A layman's guide to important Federal labor laws and regulations providing safeguards for employes in private employment, this manual shows the Federal agencies which furnish information or general services in the field of working conditions and labor relations. The basic book, issued in 1957, brings together a quick reference to such laws and regulations. The 1960 supplement summarizes briefly the major Federal labor laws and programs enacted or amended during the period 1957 through 1959. Basic Manual. Rev. 1957. 119 p. Catalog No. L 16.3:-123/3; price, 40¢. 1960 Supplement. 1960. 71 p. Catalog No. L 16.3:-123/3/supp.; price 30¢. Order by catalog number from U. S. Government Printing Office, Washington 25, D. C.

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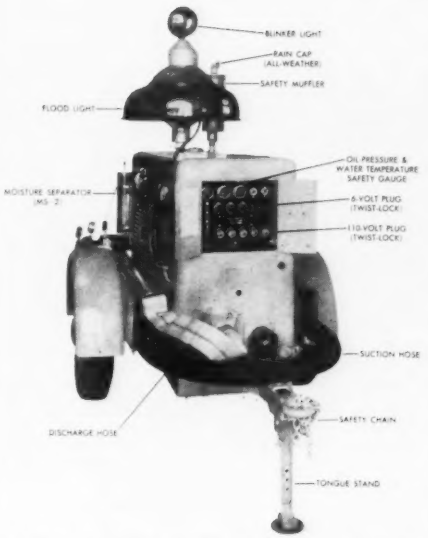

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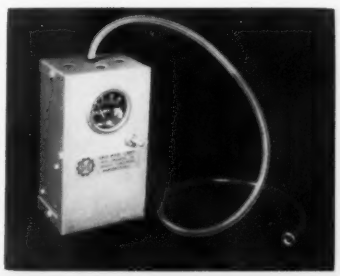

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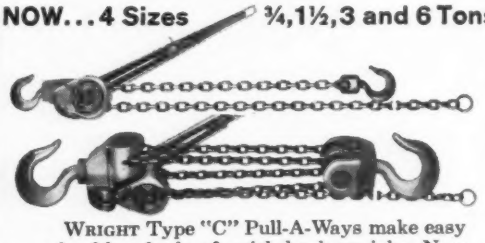

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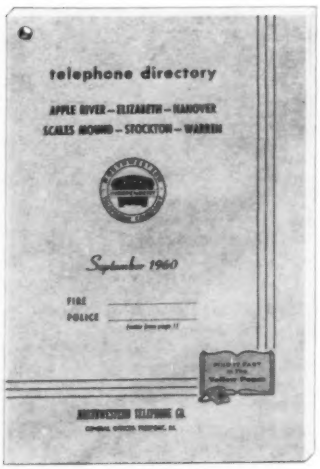

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"Regulation And Free Enterprise"

(Continued from page 42)

tionships between fixed investment and sales, and the effect of business changes on fluctuation of revenues.

In fact, a regulator must have a broad view of the whole economy, non-regulated as well as regulated, if he is to see the utilities he regulates in the proper light.

American Regulation

IT IS popular today to criticize the functioning of regulation. Many proposals for changes have been made, with claims that these proposals will make regulation work better.

In general, I doubt that any legislation can insure completely fair decisions by all regulators in all cases, any more than one can always be assured of a fair trial before a judge. Regulators and judges alike are human beings, subject to the frailties of humanity.

But beyond this, I think the record of American regulation will stand comparison with other systems anywhere in the world, as I have stated before.

Francis X. Welsh recently pointed out, "Here we are with a sixth of the world's population, 56 per cent of all the telephones in the world, 40 per cent of all the electric generating capacity in the world, more miles of plane, train, and pipeline carriage than anywhere else in the world. How in the face of these results can anyone *dare* to say that commission regulation has been a failure or that it should be replaced by some other system which cannot show comparable results?"

A power industry journal reports, "In order to enjoy the glories of the present Soviet system . . . we would have to abandon . . . two-thirds of our petroleum capacity . . . destroy two of every three of our hydroelectric plants, and get along on a tenth of our present volume of natural gas . . . We would cut our living standard by three-fourths, destroy . . . nine of every ten telephones."

I believe regulation has worked well. I know it can work better. Any institution can. But improvement will come as we attract the kind of man who is capable of meeting the high requirements of regulation.

I spoke in the beginning of this article of the need for academic study of regulation and free enterprise. A revival of interest in the universities, renewed stature for the study of public utility economics, would, I believe, contribute toward stimulating the interest of men with the capacity and character required of regulators. Good salary, tenure and training are also necessary, of course.

What I am talking about here is our future, for actions by regulators as well as managers cannot affect the past. They always affect the future, where we will all spend the rest of our lives, as someone once said.

Looking forward has been a character trait of Americans ever since the Mayflower arrived. Thomas Carlyle once said, "The degree of vision that dwells within a

man is correct measure of the man." It seems to me that this has been a key to the success of this country. And there is much more to come.

In the telephone field, which this journal is concerned with, I wonder how many people realize that we are in the midst of a communications explosion as real as the population explosion.

The size limit on a city was described in early Greece as the number of people who could hear the voice of a single orator. This illustrated the effect of communications on a community. The city limits in this illustration have now been expanded to the moon.

This means both the problems and the opportunities will be massive for the communications business in the future. Regulators and managers may well be staggered at their proportions. It will take all our wit and will to come out on top.

But come out on top we must. The success of all industry under free enterprise is too heavily dependent on the success of the regulated sector to allow any other outcome. — *The end.*

EDITOR'S NOTE

To order copies of a reprint of Mr. Brown's four TE&M articles on "Regulation" for distribution to employes, stockholders, the press and others interested in utility regulation, please send us your order as soon as possible.

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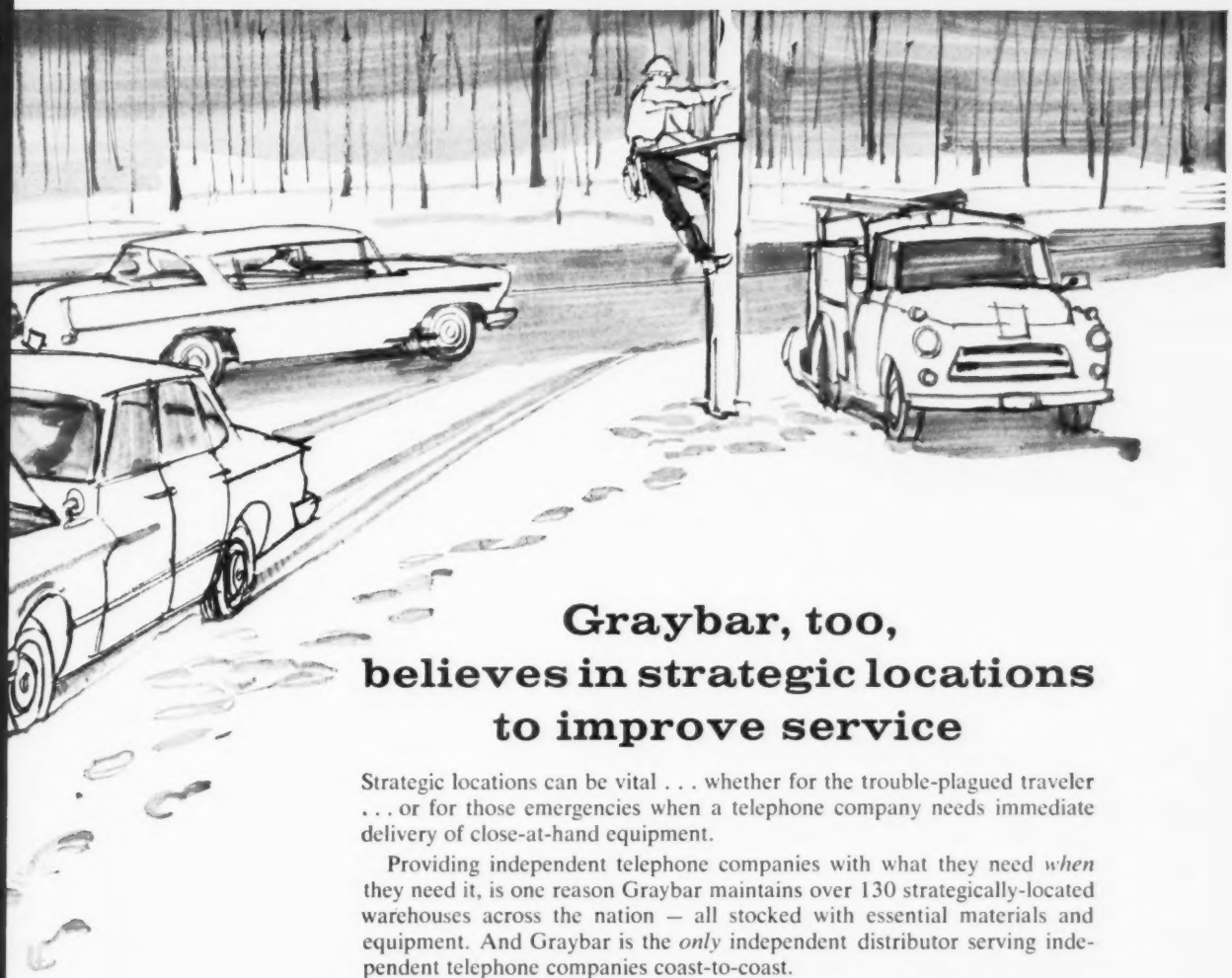

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Telephone Industry News Highlights

COAST-TO-COAST REPORTS

- General Telephone & Electronics Corp. reports record sales and revenues in 1960; net income was highest in corporation's history.
- American Telephone & Telegraph reports 1960 earnings equal $5.33 per A.T.&T. share, against $5.22 in 1959.
- Schaefer elected president of DeKalb-Ogle Tel. Co. . . . Dan McNulty shares ownership of Telephone Repair with veteran employes.

General Telephone & Electronics Corp. Reports 1960 Revenues and Sales Hit New Highs

GENERAL Telephone & Electronics Corp. achieved its highest sales and revenues during 1960 from its diversified communications and manufacturing operations which reached a new record total of $1.18 billion, exceeding the previous record of $1.08 billion established in 1959.

Net income of $72.4 million was also the highest in the corporation's history. Total assets amounted to $2.2 billion at the end of the year, up from $1.82 billion at the close of 1959.

In releasing results for the year Donald C. Power, chairman and chief executive officer, pointed out that "there are many opportunities ahead for the General System in the complex communications, electronics and fields of automation which make up a large part of our business. Many challenges will confront us as the economy expands, but I am confident of our ability to meet these challenges effectively."

Combined operating revenues of telephone subsidiaries were $477,188,000 and included for the first time the operations of British Columbia Telephone Co. in Canada. This company, in which the corporation previously held a minority interest, became a subsidiary in December, 1960. Telephone revenues, including British Columbia, were 11% ahead of 1959.

Net sales of the manufacturing group amounted to $701,287,000 which was a slight decrease from the 1959 total. Power pointed out that "increased earnings from telephone operations more than offset the lower total income of the manufacturing group which was caused by intensive competition during the latter part of 1960 in some of our commercial product fields."

Earnings of the corporation were equal to $1.04 per common share on the sharply increased average number of shares outstanding during the year. Comparable earnings were $1.13 in 1959. The average number of shares in 1960 was 69,000,000 against 62,990,000 in 1959.

"More than $274 milion was spent last year for improvement and expansion," Power said, "bringing the total invested during the past five years to more than $1 billion. A total investment of $269 million for new telephone plant and manufacturing facilities is planned for 1961. Although every effort was made to minimize the rising costs of expanding and improving telephone service, it became necessary in several operating areas to seek approval for the repricing of telephone services from regulatory commissions to provide fair and reasonable return on the capital invested in our business. With the same objective, vigorous attention continued to be given to negotiations with connecting companies in order to strengthen our earnings by obtaining more equitable compensation for jointly rendered toll services."

Comprising the largest Independent telephone system in the United States, General Telephone companies at year-end served nearly 4,107,000 telephones in 5,600 communities of 12 million population in 31 states. GT&E International subsidiaries served more than 566,000 telephones in Canada, the Dominican Republic and Haiti. The corporation also has a min-

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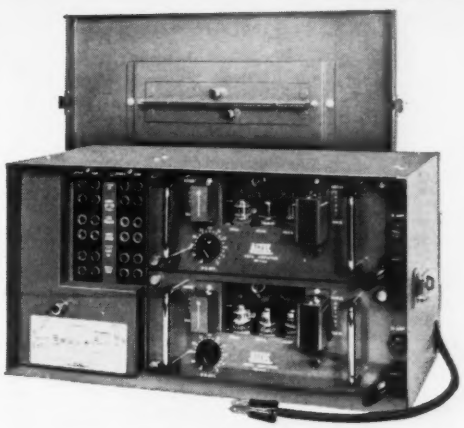

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During 1960 manufacturing companies engaged in the development and production of many highly advanced types of communications and electronic equipment. Automatic Electric Co., the largest manufacturer of communications equipment for the Independent telephone industry, introduced its new Starlite Telephone which requires half the space of an ordinary telephone and it has received good acceptance.

Automatic Electric also made progress during the year in expanding the scope of its Industrial Products Division. This company is applying its 70 years of experience in dial telephony to the development and production of complete industrial systems in the broad fields of automatic controls, data gathering and associated voice communications system. Sylvania, as one of the two top producers of electronic tubes, produced its two billionth receiving tube during 1960. All manufacturing companies introduced major innovations and improvements to lower costs and enlarge their product lines.

Major defense programs include the data processing equipment which serves as the "nerve center" for the Air Force's Ballistic Missile Early warning Systems now in operation in Greenland and similar equipment soon to be installed in Alaska. Communications systems are being developed for Atlas and Minuteman intercontinental missile launching sites in the United States and for Polaris missile launching submarines.

The General System currently has 3,600 scientists and engineers in 26 laboratories with basic research and advanced development centered at General Telephone & Electronics Laboratories in Bayside, New York.

In concluding, Chairman Power pointed out that "the System can grow only through the combined efforts and outstanding spirit of cooperation of its employes." At the present time General and its subsidiaries employ over 90,000 men and women.

American Telephone & Telegraph Co. Earnings Hit New High of $5.53 Per Share in 1960

THE BELL SYSTEM in 1960 completed its biggest construction program ever and began "working at top speed" toward a satellite network to provide worldwide telephone, data, and television communications, the American Telephone and Telegraph Company said last month in its annual report to 1,911,000 share owners. AT&T hopes to be testing a satellite in orbit by the early part of next year.

"We feel strongly that private enterprise can best maintain America's leadership in space communications," said Frederick R. Kappel, AT&T president. "We are ready to do the job, eager to move ahead, and confident the result will serve the public interest well."

In reporting 1960 earnings equal to $5.53 per AT&T share against $5.22 in 1959, Kappel said: "Good profit and fair rewards to risk capital are vital to sound economic growth. Without the improvement made in earnings in recent years, the Bell System could not possibly move forward as the times require."

The Bell System construction program in 1960 cost a record $2.6 billion. More than $1 billion of new capital was raised.

"We shall be enlarging and improving our plant in 1961 on almost the same scale as last year," Kappel said, "and much new capital will be needed."

The total tax bill on Bell System service was $2.5 billion, an average of $41.89 per telephone. Federal, state and local taxes on operations were $1,848,000,000 and telephone users paid an additional $640 million in federal excise taxes.

Kappel said the 10 per cent excise tax on local telephone service "puts a burden on the telephone that is borne by no other household utility. We hope it will be allowed to die this coming June 30."

Other highlights of the report:

(1) The 1960 gain of 2,793,000 telephones brought the number of Bell System phones to 60,735,073, about 97 per cent of them dial operated. Telephone calls averaged more than 219 million daily, up from 208 million in 1959.

(2) Direct Distance Dialing was extended so that half the Bell System customers now can dial their own long distance calls. Long distance usage increased 7 per cent.

(3) Data-Phone service, which allows business machines to "talk" to each other over the telephone, is growing rapidly, with some 1,100 Data-Phone sets in service at the year's end.

(4) The world's first electronic central office, forerunner of telephone switching systems of the future, went into trial operation at Morris, Ill.

(5) New services introduced in 1960 included Home Interphone, a home intercommunicating system tied in with regular telephone service; Farm Interphone, a similar system for farms; and Bell Chime, which announces telephone calls with a musical tone. Bellboy, a personal signalling service featuring a pocket-size radio receiver, was provided in 18 cities.

Two other services developed in 1960 now are ready to help meet the growing needs of modern industry.

Wide Area Telephone Service, offered in January, 1961, allows businesses and other large long distance users to call over very wide areas — even across the continent — for a flat monthly rate. TELPAK, designed for customers who send large quantities of communications between specific points, will furnish broadband channels for telephone, teletypewriter, high-speed data, facsimile, and other communications needs.

To help meet the increasing demands for overseas service, the Bell System in 1960 accelerated its submarine cable construction program. It now is building — jointly with Cables and Wireless, Ltd. of Great Britain — cable systems between this country and Bermuda and from Puerto Rico to Antigua.

Another cable from Florida to

Jamaica will be laid in 1962. A third trans-Atlantic cable is planned for 1963. In the same year, the Florida-Jamaica cable will be extended to South America. In 1964, a cable will be built between Hawaii and Japan, and a second cable will be laid between Hawaii and the U. S.

In addition to space communications, the Bell System continued to be a major participant in other science and defense fields.

Western Electric Co., manufacturing and supply unit of the Bell System, headed an industrial team that has virtually completed a series of tracking stations which will maintain communications with the nation's first Astronaut. Since September, a communication system developed by Bell Telephone Laboratories and installed by Western Electric, has been carrying data from Ballistic Missile Early Warning radar in Greenland to North American Air Defense Command headquarters at Colorado Springs.

The Bell Laboratories also did intensive development of the NIKE ZEUS missile system for defense against long-range missiles, and Western Electric is developing methods of manufacture. The Laboratories' guidance system for the Titan missile and for space vehicles proved "outstandingly successful," the report said.

Bell System employes totalled 735,766 at the end of 1960, and the System paid $4,174,000,000 in wages during the year.

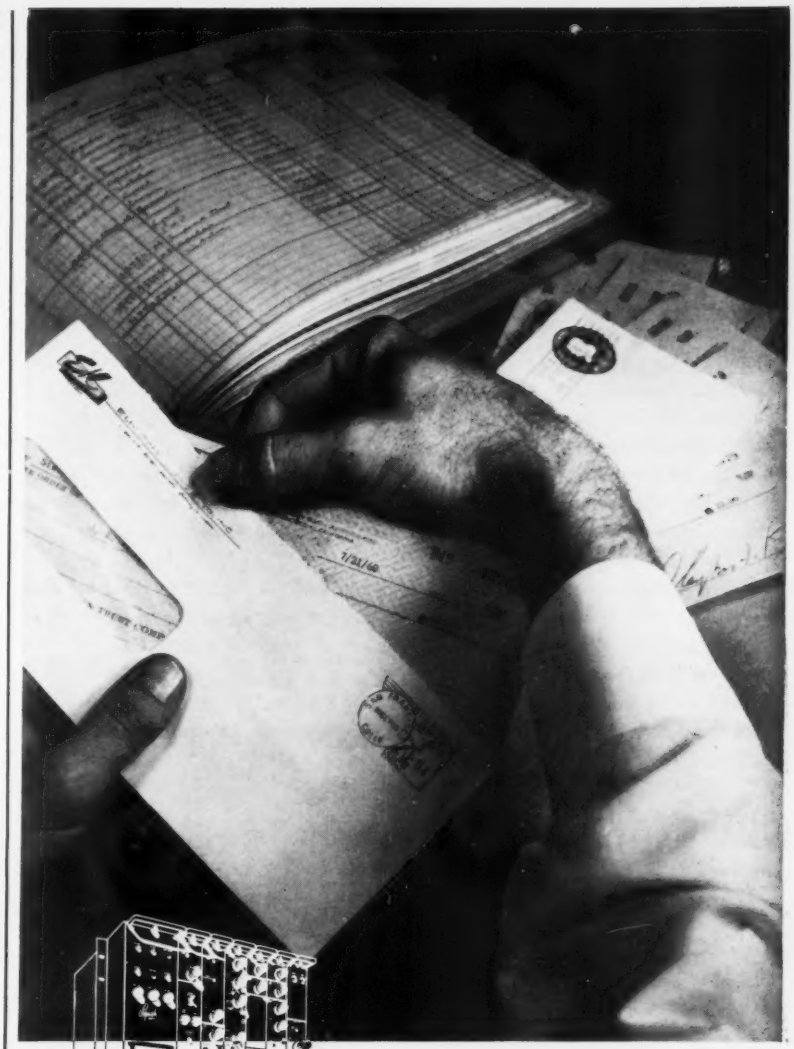
"Notwithstanding dial equipment, computers, and every other kind of machine, this business is run by men and women and always will be," Kappel said. "Our success depends utterly on the quality of the human effort."

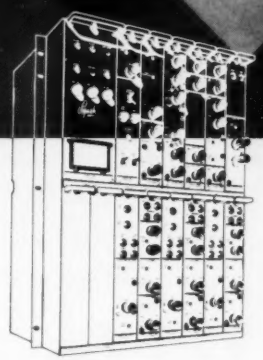
DeKalb-Ogle Tel. Co. Holds Annual Meeting

ANNUAL Meeting of stockholders of the DeKalb-Ogle Telephone Co., Sycamore, Ill., was held at the general office of the company last month.

The stockholders elected as directors for the ensuing year: Clyde W. Byers, Clifford Danielson; H. D. Fisk; H. A. Joslyn; T. W. Joslyn; Daniel A. Schaefer; V. R. Smith; J. N. Stanbery; and Ira A. Wetzel.

The reports of the officers showed





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a continuing growth and expansion of the company. The investment in telephone plant amounted to $6,535,420 at the end of 1960, an increase of $695,064 during the year. There was a gain of 1436 telephone stations during 1960, and the company total is now 27,097. Employes of the company at the end of the year numbered 314.

During the year Mount Morris, Ill., was converted to dial operation making more than 85 per cent of the company's telephones dial operated. The stockholders were told that a new dial office building at Rochelle was in the process of construction and that Rochelle would be converted to dial operation late in 1961. They were also told that the goal of 100 per cent dial operation was in sight, for it is expected that Waterman, the other remaining non-dial office, will be converted in the spring of 1962.

Following the meeting of stockholders the directors elected the following officers for the coming year: Daniel A. Schaefer, president; Clifford Danielson, vice president; W. J. Kathman, general manager; T. W. Joslyn, secretary and treasurer; and C. M. Hopkins, assistant secretary and assistant treasurer.

Schaefer started with the DeKalb-Ogle company in March, 1953 as assistant general manager. He was promoted to general manager in February, 1956 and vice president in June, 1960.

Prior to joining the DeKalb-Ogle company, he was with R. W. Beck & Associates, consulting engineers, Seattle. He was also with the Indiana Bell Telephone Co. in the traffic and general engineering deaprtment prior to, and after World War II.

As a Lt. Colonel, U. S. Army, he commanded the 424 Field Artillery in Korea, and the 304th Field Artillery during World War II.

He graduated from Purdue University with a Bachelor of Science degree in Electrical Engineering, and later attended the Indiana University.

Dan McNulty Shares Company Ownership With Employes Who Helped Build Company

LAST MONTH Daniel H. McNulty and his wife, the late Dorothy McNulty (see story on page 9), of Telephone Repair & Supply Co., Chicago, announced their plans to share ownership of the business with the newly elected Vice President, Vincent D. Halloran, and five veteran employes who have helped build the business to its present status, William Masloske, superintendent; Frank Schutz, foreman; Elizabeth Iverson, forelady; Marvin Shrake, assistant foreman; and Alice Dinghofer, office manager.

The company was founded in 1926 as Telephone Repair Shop, and later became an Illinois corporation known as Telephone Repair & Supply Co. Primarily a service organization, the company offers repair and rebuilding service to Independent telephone companies, and manufactures several telephone equipment and supply items.

President McNulty started his telephone career in January, 1902, at the Western Electric factory in Chicago as a student workman. He worked as a groundman and helper in building telephone lines in North Dakota and Montana, as a switchboard man for the Sunset Telephone Co., (now Pacific Telephone & Telegraph Co.) in Washington and Oregon, and foreman of underground construction and submarine cable laying in the Puget Sound area.

DANIEL H. McNULTY, president of Telephone Repair & Supply Co., Chicago.

He was Master Signal Electrician of the 411th Telegraph Battalion in World War I, serving as wire chief for the First Army on the Argon Drive, and a member of President Wilson's Honor Guard in Paris. He was foreman of the telephone department of the Premier Electric Co. of Chicago after World War I.

Vice President and General Manager Halloran formerly was with the Harris Trust & Savings Bank of Chicago in the trust department. He served three years in Naval Aviation performing duties in the fields of

Veteran employes of Telephone Repair & Supply Co., who now share ownerships in the business, are (l. to r.): WILLIAM MASLOSKE, FRANK SCHUTZ, ELIZABETH IVERSON, MARVIN SHRAKE, and ALICE DINGHOFER.

VINCENT D. HALLORAN, vice president and general manager, Telephone Repair & Supply Co., Chicago.

radar and communication. As salesman he will attend the National Telephone Convention and divide with Mr. McNulty attendance at State telephone conventions.

According to Mr. McNulty, the McNultys have not retired from the telephone industry, but they are sharing with the people who have been with them for so many years, an ownership in the business they have helped build.

United Utilities Reports On 1960 Earnings

UNITED UTILITIES, INC., Kansas City, Mo., has reported preliminary 1960 earnings available to the common stock were $6,154,000, compared to $4,921,303 in 1959. On the basis of 2,545,364 average number of shares outstanding, the earnings were equal to $2.42 a share, compared with $2.09 a share on a smaller capitilization of 2,350,378 average shares.

Total operating revenues amounted to $45,157,000 as against $42,442,240 in the preceding year.

Directors have voted the regular monthly quarterly dividend of 40¢ a share payable March 31 to holders of record March 6.

Judge S. A. Lindsey Dies At 97, After Long Illness

JUDGE S. A. LINDSEY, 97, died February 28 at his Greenbriar Lake, Texas, home after a long illness.

Judge Lindsey was a champion of

now you can have
LONGER
LINES
with WB
JACKETED-PAIR
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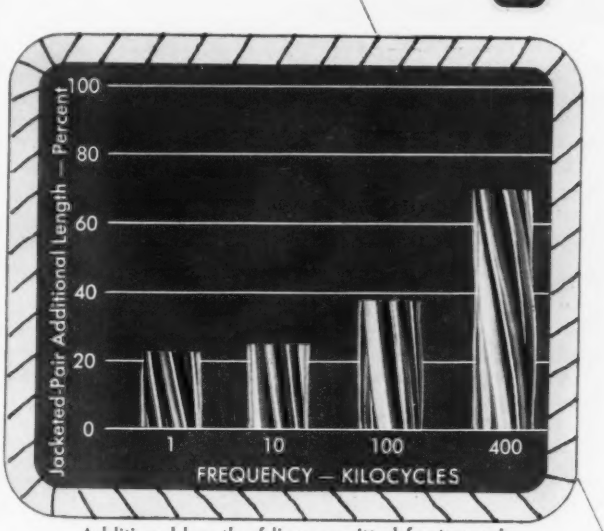

Additional length of line permitted for transmission loss based on wet weather characteristics. Jacketed-Pair vs Standard Construction (PE-15 March 1960)

Jacketed-pair Distribution Wire exhibits substantially lower loss during heavy rain and will, therefore, allow a longer line for an equal transmission loss. At one kilocycle this improvement permits a 22% longer line.

Write for full details shown in our new Bulletin T-6.

WB WHITNEY BLAKE CO.

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"Off The Board"

Communications Securities

Markets as of February 27, 1961	DIVIDEND	BID	ASKED	LAST SALE
American Tel. & Tel. Co.	$3.30			115
Anglo-Canadian Tel. Co. (Br. Col.-Dom. Rep.)	1.20	47	49	
Bell Tel. Co. of Canada	2.20			50½
British Columbia Tel. Co.	2.20	49	51½	
Calif. Interstate Tel. Co. (Calif., Nev.)	.70	16¾	17¾	
Calif. Pac. Util. Co. (Calif., Nev., Ore.)	.90	25	27	
California Water & Tel. Co.	1.36	32½	34	
Carolina Tel. & Tel. Co.	1.60	43½	45½	
Central Electric & Gas Co.	1.20	31¾	33¾	
Central Tel. Co. (Minn., Ia., N. C.)	.88	25¾	27¼	
Chenango & Unadilla Tel. (N. Y.)	1.20	76	—	
Cincinnati & Suburban Tel. Co.	4.50	108¼	110¼	
Citizens Util. Co. (Calif., Pa.) "A"	stk. only	24	26	
Citizens Util. Co. (Calif., Pa.) "B"	.56	21½	23½	
Commonwealth Tel. Co. (Pa.)	1.00	23½	25¼	
Florida Tel. Corp.	1.00	29	31	
General Tel. & Electronics Corp.	.76			28
Hawaiian Tel. Co.	1.00	30	31½	
Independent Tel .Co.	none	9	10	
Indiana Tel. Co.	.50	25½	—	
Inter-County Tel. & Tel. Co. (Fla.)	.72+stk	27½	30	
Inter-Mountain Tel. Co. (Va., Tenn.)	.80	19¼	21	
International Tel. & Tel. Corp.	1.00			53⅝
Jamestown Tel. Corp. (N. Y.)	6.00	88	—	
LaCrosse Tel. Corp.	.80	16	—	
Lincoln Tel. & Tel. Co. (Nebr.)	2.60	65	—	
Lorain Tel. Co. (Ohio)	1.40	32	—	
Middle States Tel. Co. (Ill.)	.80	32	34	
Mountain States Tel. & Tel. (Ariz., Colo., Mont., Tex.)	.90			29⅛
New England Tel. & Tel. Co.	1.72			51⅛
North Carolina Tel. Co.	none	1	1¾	
Northern Ohio Tel. Co.	2.00	64	66	
Pacific Tel. & Tel. Co.	1.14			39⅜
Peoples Tel. Corp. (Pa.)	4.00	100	—	
Pioneer Tel. Co. (Minn.)	1.00+stk	36	39	
Rochester Tel. Corp. (N. Y.)	1.00			27
Southeastern Tel. Co. (Fla.)	1.00	25	27	
Southern Nevada Tel. Co.	1.20	40	43	
Southern New England Tel. Co.	2.20	48	49½	
Southwestern States Tel. Co. (La., Ark., Okla., Tex.)	1.28	31¼	32½	
Telephone Service Co. of Ohio "A"	.36	28	—	
Telephone Service Co. of Ohio "B"	.36	29	—	
Tidewater Tel. Co. (Va.)	1.40	27	—	
United Utilities, Inc.	1.60	52½	54	
Virginia Tel. & Tel. Co.	1.00	20½	—	
West Coast Tel. Co. (Wash., Ore., Calif.)	1.28	30¾	32	
Western Union Telegraph	1.40			46
Western Utilities Corp.	.36	11½	12¼	
Western Light & Tel. Co., Inc. (Mo., Kans., Ia.)	2.40	53	55	

(Source of Market — DEAN WITTER & CO.)

rural life and farm improvements, a leading force in the creation of the federal land bank system, and had gained a national reputation among men concerned with rural credit systems.

Judge Lindsey had held the offices of chairman of the board of the Peoples National Bank and president of Gulf States Telephone Co. for many years.

He was awarded the T. B. Butler Award as Tyler's outstanding citizen for the year 1931.

Judge Lindsey was known as the father of the federal land bank system.

He was chairman of the board of the Land Bank, Mouton, Texas, from 1923. Except for a few month in 1933, he had been a director of that bank for the entire time of its existence, and was responsible, probably more than any man, for the creation of the entire system of federal land banks. In 1917 when the bank was organized, he became treasurer. A short time later he was made secretary.

A native of Louisiana, Judge Lindsey moved to Texas in 1869 with his mother and his stepfather — his father had been killed in the Civil War.

The family settled near Greenbriar, Texas, where the judge was later to live in his suburban home.

The family lived there three years. After his stepfather died, his mother married a third time, to a man named Robinson. As a young boy, the judge was known as "Sammy Robinson," a name he bore until he was grown.

When he was 14, he went to work on a farm. He saved all his money, later used his savings to pay his way through the old Summerhill Select School at Omen. In between school sessions he taught school at Fincastle in Henderson County.

He later won a scholarship to Sam Houston Normal at Huntsville, Texas, returned to Smith County and taught school at Lindale, Texas. Then he began his career at law.

As a young lawyer, he rode in his buggy throughout East Texas to practice in the justice and county courts.

It was on such a buggy trip that he conceived an idea that was to con-

Please turn to page 82

Which Teletype printer is best for you?

Which of these Teletype Model 28 page printers is best for your message and data communications needs? Each will perform the basic function of all Teletype equipment—to flash information over long or short distances. But in addition, each has varying capabilities to meet the requirements of the individual user:

Send-receive page printer in console—probably Teletype's most familiar product; for sending as well as receiving page copy.

Receive-only page printer in console—the same machine, but without a keyboard. For use where information need only be received, not sent. No operator is required.

Table model—with or without keyboard . . . similar model available for rack mounting.

Combination set—a complete message center in one compact cabinet. In addition to page printer and keyboard, it contains facilities for preparing punched tape and for transmitting and receiving via tape.

All of these Teletype Model 28 page printers feature the Stunt Box, a built-in "programming" mechanism that will inexpensively handle a wide variety of remote control and switching tasks such as automatic station selection. All models can be supplied with sprocket-feed and tabulating mechanisms for use with multi-copy business forms. All are available, too, in a choice of cabinet colors to match office decor.

Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications. Teletype equipment can be used with Data-Phone and other communications services.

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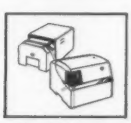
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Free Model 28 Line folder. Write Dept. 66-C, 5555 Touhy Avenue, Skokie, Illinois

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For full details, contact your local ITT Kellogg Representative, or call or write the ITT Kellogg Regional Office nearest you today.

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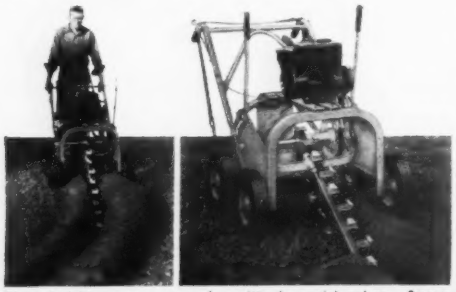

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Fast trenching at lowest cost. Reduces man-hours to minutes. Eliminates disadvantages of subcontracting. A profitable, inexpensive machine to own and operate.

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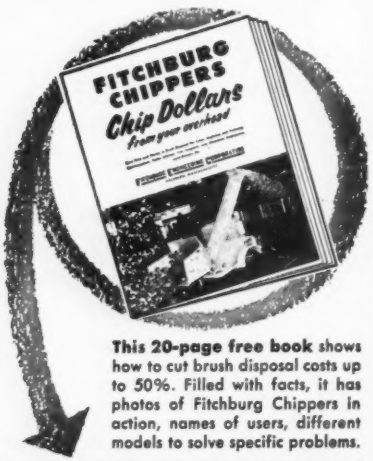
HOW TO SAVE MAN HOURS IN BRUSH DISPOSAL



This 20-page free book shows how to cut brush disposal costs up to 50%. Filled with facts, it has photos of Fitchburg Chippers in action, names of users, different models to solve specific problems.

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tribute much to his fortune. He founded the S. A. Lindsey Telephone Co. which later became the Gulf States Telephone Co., Tyler, Texas.

From 1901 until 1905 he served as county judge in Smith County.

He entered banking as a stockholder of the Citizens Bank of Tyler. Then he traded his stock in that bank for an interest in the then struggling Peoples Bank. He served as chairman of the board many years.

In 1893 Judge Lindsey married Therese Kayser. Mrs. Lindsey was one of the organizers of the Texas Poetry Society. She died in April, 1957.

In 1914 Judge Lindsey was named to a commission authorized by Congress to study cooperative credits in Europe. It was in 1916, largely due to the commission's report from Europe, that Congress authorized establishment of federal land banks.

In the early 1920's, at the request of his friend, Jesse Jones, Judge Lindsey took the presidency of the National Bank of Commerce in Houston. He became chairman of the board of the Federal Land Bank of Houston in 1923 and served many years.

Survivors are a daughter, Mrs. Louise Lindsey Merrick of Bandera; a granddaughter, Mrs. Bernard Wolf of Tyler; and three great-grandsons.

Palbearers were Rolla Johnson, Morris Burton, Pat Cooney, Sam McMillan, Paul Messer, C. R. Heaton, Dr. Jim Vaughn, and Walter Adams.

Chance Transfers Mfg. Facilities to Missouri

TO COMBINE its pole line hardware manufacturing, the A. B. Chance Company is moving all production equipment from Pittsburgh, Pa. to Centralia, Mo. The move is being made for greater production and marketing efficiency of hardware.

A new "ServiCenter" has been constructed at 1408 West 20th Street, Erie, Pennsylvania, to give sales, product application and shipping service to that area of the country formerly served by the Pittsburgh sales service office.

Two large additions have been built on the Centralia factory and

other departments have been relocated or rearranged so that 58,000 square feet of floor space will be utilized for pole line hardware manufacturing. Over one-hundred large units of machinery have been transported from the Pittsburgh plant. With better utilization of the present forging and metal fabrication equipment in Centralia and the purchase of new machinery, the relocated facility will be one of the most modern and efficient hardware manufacturing plants supplying the power and communication industries, with greatly increased production capacity.

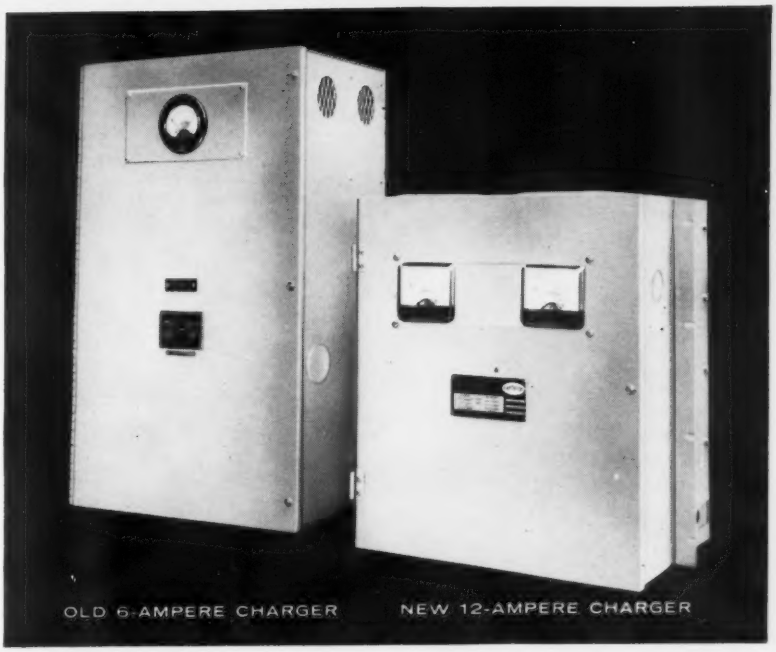
A large 25,000 square-foot warehouse will be used for storage and as a central shipping point for finished goods. The move was completed early this month.

Raytheon Board Approves Purchase of Tran-Sil Corp.

RAYTHEON CO. directors have approved the acquisition of the stock of Trans-Sil Corp., Englewood, N. J., manufacturers of high power silicon rectifiers. The acquisition, at an undisclosed price, has been approved by Food Machinery & Chemical Corp., the principal owner, and the other stockholders.

Trans-Sil expects 1961 sales of about $1,500,000. More than 90 percent of Trans-Sil's sales of rectifiers are made to industrial customers, most of whom are electrical and electronic manufacturers. Customers of Trans-Sil presently include manufacturers of computers, power supplies, battery chargers, public utilities equipment, communications transmitters, motor controls, machine tools, and textile machinery.

Principal product line is a modular, stacked silicon power assembly ranging from 1 to 1200 amperes and up to 50,000 volts. Higher performance levels for heavy duty applications are made possible by the application of a unique modular diode which lends itself to stacking and the combination of units. This Trans-Sil development also reduces the high cost of machining mounting plates and assembling conventional stud-mounted rectifiers into stacks. The firm also



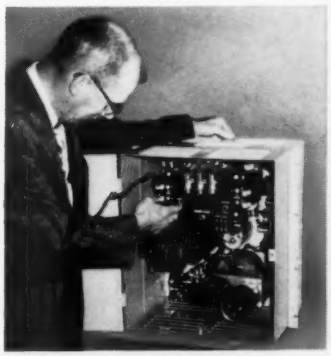
How telephone battery chargers have changed!

Twice the power, half the size!

Yes, these new Raytheon silicon battery chargers pack twice the battery charging capacity in half the space. But that's not all. They also provide excellent regulation (±1%) and noise-free output (30-millivolt filtering) with improved dependability.

These new solid-state designs use fewer components, minimizing possibility of failure through simplified design. They utilize conservatively rated silicon rectifiers which are non-aging and have extremely low power losses. In your exchanges, this means:

- greater operating efficiency
- longer life
- no adjustments
- space-saving advantages



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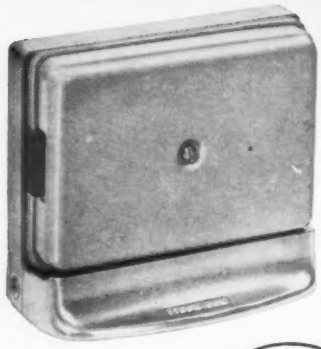
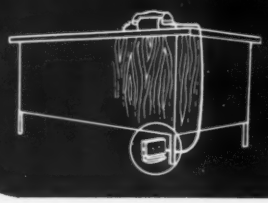
keeps desks free from all telephone equipment . . .
ends needless marring of office furniture





gives you beauty, uniformity and economy!

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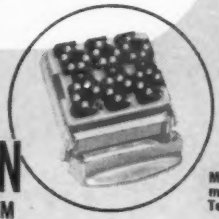

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Comes in four plated finishes: Chrome—satin or bright, and Brass—satin or bright.

All necessary fittings will be supplied to adapt Floor-Con to your particular duct system or floor installation—please specify the type or make in use.

MODEL 102 shown with standard telephone equipment, accommodates up to 6 No. 44-A Connecting Terminals (3 on each side).

MODEL 104 accommodates up to 8 No. 44-A Connecting Terminals (4 on each side).

Or, the back of either model can be used to install external ringers, buzzers or auxiliary equipment.

For catalog information and prices, write:

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FOR UNDERGROUND (VAULT MOUNTING), CONTAINING 4 TO 460 COILS.

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These assemblies can be equipped with voice frequency coils. Types C632 (88 MH) and C638 (44 MH) Coils are for subscriber Loading, and Types C642 (88 MH) and C641 (44 MR) coils are for use on quadded inter-office and toll cables. Special coils can be made to meet other requirements.

Write us for assistance on your loading problems.

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manufactures a line of stud-mounted, silicon diffused rectifiers ranging from 1 to 20 amperes.

Trans-Sil's semiconductor product line complements Raytheon's own expanding solid state business. Trans-Sil will operate closely with The Machlett Laboratories, Inc., a Raytheon subsidiary in Springdale, Conn. Plans call for continuing Trans-Sil's operations in New Jersey with its present staff of approximately 50 people.

Lynch B1020 Electronic Monitoring System

A NEW high speed, continuous Electronic Monitoring System which can accurately monitor any condition that can be represented by an electrical contact closure is described in an 8-page booklet available on request to *Lynch Communication Systems Inc., 695 Bryant Street, Dept. TE&M, San Francisco, Calif.*

The continuous scanning of the Lynch Electronic Monitoring System makes interrogation unnecessary so that only one direction of transmission is required. The remote terminal monitors the condition of a number of functions or points at a remote location and transmits a corresponding code to a headquarters location. This coded information is accepted by the Monitoring System's receiver where it is decoded, checked and displayed. The display of information is always correct, regardless of line noise, etc., because the Lynch Monitoring System utilizes error-checking circuits which permit only valid information to be displayed. The display of this information also is always reliable despite continuous operation because the Lynch Monitoring System uses only solid-state components, therefore there are no moving parts to wear out.

Typical applications include: circuit breakers, motor driven valves, hazardous atmosphere sensing devices, communications equipment, pressure switches, temperature switches, level switches, over-or-under voltage switches, over-or-under speed switches, flow switches, and for transmission of binary coded analog data.

Thornhill Joins National Yellow Pages Program

THORNHILL Publishing Company is now recognized by the American Telephone & Telegraph Company as a participant in the National Yellow Pages Service program. Thornhill publishes telephone directories for Independent telephone companies in Washington, Oregon, California, and four southwestern states for 16 years.

George Thornhill, of Thornhill Publishing Co., stated that, "Providing NYPS service to national advertisers within our service areas will mean uniformity in their sales message and display advertising in as many as 4000 telephone directories with a combined circulation of more than 60,000,000. These advertisers can now reach any market in the United States or Canada by placing a single order through one contact and one contract, and pay for this service with one monthly bill."

NYPS was pioneered by the Bell Telephone System with the assistance of Reuben H. Donnelley Corp., General Telephone Directory Co., and L. M. Berry & Co.

Participating in the week-long National Yellow Pages Service (NYPS) training session at Thornhill Publishing Company headquarters in Everett, Wash., were (l. to r.): ELAINE RASH and HAROLD REUSCH, from Thornhill's Monrovia, Calif. office; CHARLES W. RALL, from Thornhill's Everett office; HELEN KOTTEMAN, A. T. & T. Co.; GEORGE B. THORNHILL and HENRY WEBBER, A. T. & T. Co.

Following recognition of Thornhill Publishing Co. as an authorized service agent of the NYPS program, an intensive training session was held at the company's headquarters in Everett, Wash. Sales personnel from Thornhill's Monrovia, California plant also attended. Henry Webber from the New York office of AT&T conducted a training session devoted to directory selling procedures. Helen Kotteman, also from the New York office of AT&T, conducted training sessions on directory production procedures.

SALESMEN WANTED

We have openings for men with experience in Central Office Equipment. Previous sales experience not necessary if you have the desired personality, willingness to work and travel, and knowledge of equipment and circuitry. Reply by letter, giving complete history and resume of business experience, including recent annual earnings. Replies held in confidence.

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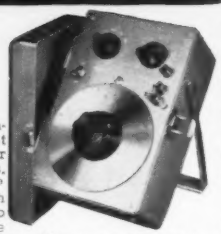
MODEL TO



Completely transistorized unit with no power consuming tubes. 4½" dial of 300° excursion with 6/1 knob ratio permits accurate setting of frequency. Aluminum case and cover protect unit for storage and carrying. Aluminum handle provides angular support for easy reading.
Frequency Span 5.5 Cycles to 600 KC in 5 bands.
Dial Span 10 to 1
Output impedance 600 ohms
Maximum Output Voltage 5 volts into 600 ohms. Open circuit 10 volts. Variable by output attenuator.
Voltage Stability within 1%. Frequency Stability instantaneous and longtime within 2%.
Distortion at rated output less than 1%.
Size 5" x 8" x 4½"
Weight with batteries 4 pounds
Uses four 6 cell mercury batteries.

Stewart
Full Transistor
VOLTMETER
MODEL TR

For portable and field use. Accuracy and stability are combined in this laboratory instrument.

NO TUBES—A completely transistorized Unit, economical in battery consumption. Requires no warm-up time.
High stability is achieved by two independent feedback loops, precision resistors and printed circuit wiring. High input impedance and freedom from fluctuations, hum and capacitance of power lines. Save time and assure better testing.
—50 DBM to +50 DBM, 11 ranges in RED, .003 to 300 volts, 11 ranges, in BLACK. Input impedance 3 megohms shunted by 25 micromicrofarads.
Accuracy 3% — 50 cycles to 600 KC. 5% — 30 cycles to 1 MC.
Size 5" x 8" x 4½".
Battery requirement two 5 cell mercury batteries. Aluminum case.
Wt. with batteries 2 lbs.

THESE UNITS AS A COMBINATION, PROVIDE ALL EQUIPMENT NECESSARY TO CHECK TRANSMISSION LINES, CARRIER EQUIPMENT, SOUND SYSTEMS AND OTHER TYPES OF FIELD AND LABORATORY WORK.

STEWART BROTHERS
Division of Instrument Laboratories
315 W. WALTON PL., CHICAGO 10, ILL.

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fully automatic ACME MAGNISTROL

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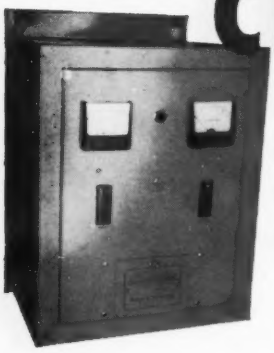

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- COMPLETELY STATIC MAGNETIC AMPLIFIER CIRCUITRY
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Standard Unit, Normally in Stock
1, 3, 6, 12 and 25 amperes; 24, 48 and 130 volt
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ACME ELECTRIC CORPORATION
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PLANTS IN CUBA, N.Y.—ALLEGANY, N. Y.

Lenkurt Plans Additions To San Carlos Building

SAN FRANCISCO Architect John S. Bolles has been retained by Lenkurt Electric Co., Inc., to submit plans for addition of approximately 94,000 square feet to its San Carlos, Calif. manufacturing building.

Approximately 82,000 square feet of the proposed new building will be designed for development engineering offices and laboratories. Most of the remaining 12,000 square feet will house a new company cafeteria. Current construction costs would indicate that the project under study would cost approximately $1-¼ million.

Anaconda Names Davies District Sales Manager

EDWARD J. I. DAVIES, formerly manager of railroad sales with headquarters in Chicago, has been promoted to district sales manager in Philadelphia for the Anaconda Wire & Cable Company. He succeeds William S. Shanahan who has been advanced to manager of sales, Government & Defense Division.

Davies joined Anaconda as a sales engineer in Chicago in 1957. He was previously general sales manager of Continental Electric Co., and sales manager of the Midwestern Region for the Biddle Co. Prior to that time he was works manager of the Wandsworth Electrical Manufacturing Co., Ltd., London.

John Lienhard Named V. P. of International Std.

JOHN LIENHARD has been named vice president of International Standard Electric Corp., New York City, and general manager of the export department.

Lienhard joined the ITT system in the Argentine as a radio sales engineer in Buenos Aires. Later, he became the first manager for Compania Standard Electric S. A. C. in Santiago, Chile in 1943. Subsequently he was managing director and president of Standard Electrica S. A. in Brazil from 1949 to 1958. Until his new appointment he had been acting as a staff executive at ITT headquarters.

Lenkurt Names Collins Product Engineering Mgr.

TATE B. COLLINS, Jr., has been appointed product engineering manager in the Commercial Marketing department of Lenkurt Electric Co., Inc., San Carlos, Calif.

Collins will be responsible for the technical liaison necessary between

TATE B. COLLINS

marketing and development engineering. His organization also produces customer equipment drawings and instructional materials, and conducts customer training.

He formerly was director of carrier and radio sales for Automatic Electric Sales Corp., Chicago, Ill., which until January 1 of this year had been Lenkurt Electric's distributor to the U. S. Independent telephone industry, railroads, pipelines, and other utilities.

When Lenkurt Electric assumed its product distribution in those fields, most of Automatic Electric's Carrier & Radio Sales staff, including Collins, transferred to Lenkurt Electric. Both companies are subsidiaries of General Telephone & Electronics.

Collins succeeds Marion C. Royalty, who has been named Southwestern district sales manager, with offices in Dallas.

Before joining Automatic Electric in 1952, Collins was with Southern Bell Telephone & Telegraph Co. for two years as a toll testboard man and for six years as an outside plant, transmission and equipment engineer,

Now Available—
New Crawler Trenchers!

9 HP and
12 HP

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TRENCHER

Lowest Cost Service Line Trench for

TELEPHONE COMPANIES

9 HP Model M-3T shown here

● Costs as little as 2c a ft. to trench for underground wiring. Especially designed for the telephone industry, the M-3T package includes dual wheels and trailer. Digs 4" to 8" wide, depths to 4' . . .

OTHER SIZE DITCH WITCH, 7 TO 30 HP, DIG UP TO 16" WIDE & UP TO 6' DEEP

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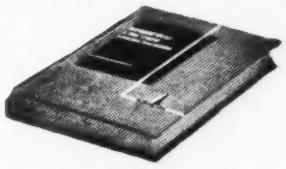

Save time and work in engineering design

Just Published! Here's a practical manual of tested product-engineering aids to help you get quicker, easier solutions to everyday work problems. It offers a ready-made file of methods, formulas, tables, and charts for engineering top efficiency into devices, components, or complete products. Covers a full range of topics, from accessories and assemblies to clutches, control devices, electrical components, etc. Includes such modern developments as ultrasonics and automated assembly. *Over 1100 drawings show vital design details.*

PRODUCT ENGINEERING DESIGN MANUAL

Edited by Douglas C. Greenwood
Editor, Product Engineering Design Digest

342 pp., 8½ x 11, over 1100 illus., $9.

The book provides a storehouse of material to stimulate you to new design ingenuity, and to help you gain improved mechanisms, better assembly methods, and savings in materials and time. Over 100 topics are systematically arranged and illustrated. You can see how each device works, what it does, and how it meets design requirements. Thus, the book gives you the "feel" of a problem by showing in detail what is good, what has been done, and what is acceptable.

Gives up-to-date facts and data on resistors

Just Published! This book thoroughly covers fundamentals and needed data in the use of resistors in electronic design. You get groundwork in the basic aspects of resistance and descriptions of each type of resistor, the materials used in its manufacture, and characteristics associated with each type. Comprehensive tables give most manufacturers' data, with specific types of resistors covered in common tables. Thus, a design or components engineer can easily determine the scope of what is available. Full attention is given to such important areas as reliability in resistors, measurements, etc.

RESISTANCE AND RESISTORS

By Charles L. Wellard
Technical Director, Clifton Precision Products Co.

264 pp., 6 x 8, 82 illus., $8.50

Among the book's many special features you will find a detailed treatment of precision films as a replacement of wirewound resistors. Included, too, is information on the preparation of precision films by pyrolysis, evaporation, and reduction of oxides. Numerous charts and graphs present information that heretofore has seldom been readily available regarding the power and voltage ratings of resistors, the varieties of material used in their construction, and their many industrial applications.

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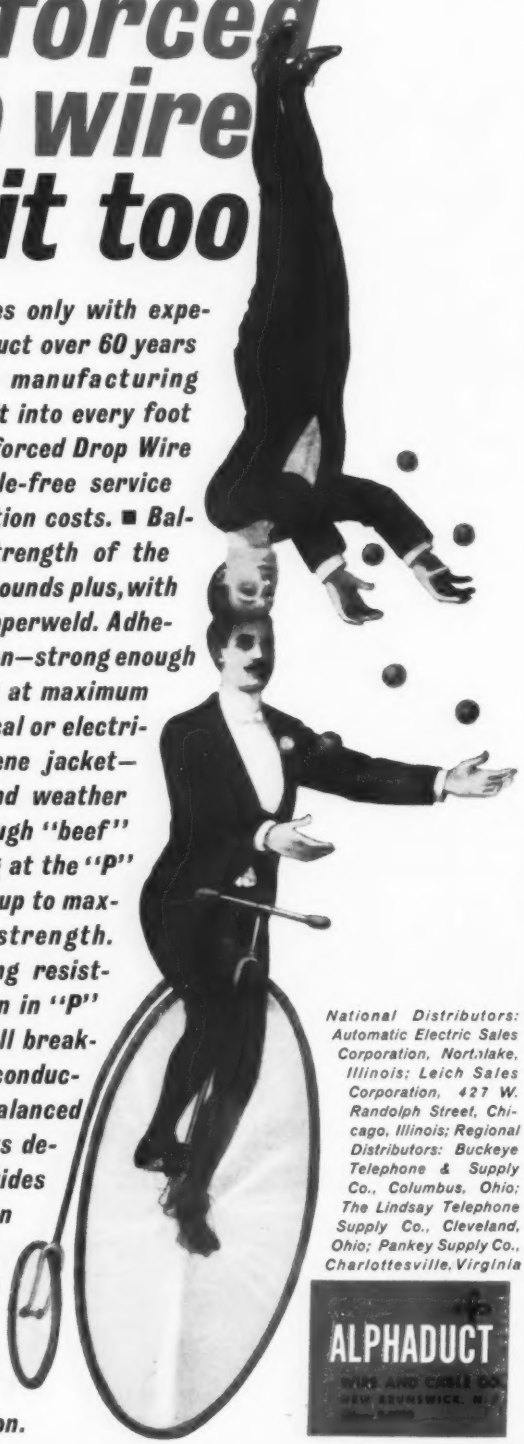

True balance comes only with experience...at Alphaduct over 60 years of technical and manufacturing know-how are built into every foot of Alphaduct Reinforced Drop Wire for greater trouble-free service and lower installation costs. ■ Balanced breaking strength of the conductors—400 pounds plus, with #18 AWG, 30% copperweld. Adhesion of the insulation—strong enough to prevent slipping at maximum load without physical or electrical failure. Neoprene jacket—tough, abrasion and weather resistant with enough "beef" to prevent buckling at the "P" clamps all the way up to maximum conductor strength. Compression cutting resistance—no breakdown in "P" clamps up to overall breaking strength of the conductors. This sturdy balanced construction resists deformation and provides greater protection against lightning failures. ■ Insist on Alphaduct Reinforced Drop Wire... and remember, it's dated for comparison.

National Distributors: Automatic Electric Sales Corporation, Northlake, Illinois; Leich Sales Corporation, 427 W. Randolph Street, Chicago, Illinois; Regional Distributors: Buckeye Telephone & Supply Co., Columbus, Ohio; The Lindsay Telephone Supply Co., Cleveland, Ohio; Pankey Supply Co., Charlottesville, Virginia

ALPHADUCT
WIRE AND CABLE CO.
NEW BRUNSWICK, N. J.

which included engineering of central office and carrier equipment.

During his four years of service in World War II, he held positions as a staff officer at the U. S. Army Signal Corps school and as battalion commander in the European Theater.

Stromberg-Carlson Names Hamlin To Sales Post

WILLIAM F. HAMLIN has been appointed a sales representative for Stromberg-Carlson's Telecommunication Division in its West Coast Branch in Burlingame, Calif.

According to T. C. Thompson, general manager of commercial sales in the Telecommunication Division, the appointment recognizes the continuing growth of the Independent telephone industry in the area served by the West Coast Branch, and provides additional manpower for serving the division's customers there. Hamlin will serve telephone companies in Eastern Oregon, Eastern Washington, Idaho, Utah and Montana.

Hamlin began his telephone career in 1953 as an assistant buyer in Stromberg-Carlson's purchasing department. Later he was made a stock analyst in the materials control section, and then, several years ago, transferred to sales engineering. More recently he has been assigned to customer engineering in the telephone finance department and the Rochester Branch office.

WILLIAM F. HAMLIN named to West Coast sales position.

TELEPHONE MARKET PLACE

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson Street, Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

TELEPHONE COMPANY PLANT MANAGER — Telephone company plant manager and plant superintendents familiar with all phases of plant department operation are needed immediately by a large growing Independent Florida telephone company. College degree desirable plus 7-10 years supervisory experience — Age 30-44. Salary commensurate with qualifications and experience — free hospitalization, life insurance and pension. Send resume and photo to Box 145, c/o TE&M, Replies strictly confidential.

TELEPHONE AREA ENGINEER — Telephone area or division engineers needed immediately by a large, expanding Independent Florida telephone company. Telephone engineering experience should include cost studies, budgeting, outside plant, special services, PBX-PABX and minor C.O.E. College engineering degree desirable plus 6-8 years experience including supervision. Age 30-43. Salary commensurate with experience and qualifications. Send resume and photo to Box 146, c/o TE&M, All replies confidential.

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Submit detailed resume of schooling and experience and definite basic salary requirements to:

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For NORELCO's high quality precision telephone equipment. An experienced Assistant Sales Manager will administer this program.

Require person familiar with market, sales promotion, distribution, also a technical background in telephone systems desirable. Sales program to independent telephone companies, railroads and other utilities includes such equipment as voice repeaters, PABX, CDO's, etc.

Highly desirable opportunity for responsible, experienced person able to plan and grow in this unique position with an expanding company.

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Send resume including salary requirement to:

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All replies held in strictest confidence

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NORELCO

SALESMEN WANTED. See our ad, Page 85. Universal Controls Corporation.

AMBITIOUS MEN — Qualified as station installers, equipment installers, cable splicers, linemen. Work in midwest. Harris McBurney Co., Inc., P. O. Box 267, Jackson, Michigan.

FOR SALE

MAGNETO TELEPHONES — Leich 901 wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wisc.

MAGNETO TELEPHONE EXCHANGE, 180 stations, good condition, room for expansion. Located in West Central Wisconsin. Switchboard located in modern home in good condition. Box 143, c/o Telephone Engineer & Management.

80 STROMBERG CARLSON 1543 desk phones, dial with straight line ringers $10.00. Less ringer $8.00. 200 Stromberg Carlson 1443 desk phones, dial with ringer $6.00. Phones guaranteed. F.O.B. Pilot Rock. Eastern Oregon Telephone Company, Pilot Rock, Oregon, Area Code 503 443-2111.

FOR SALE: 1 Stromberg-Carlson 121-A cordless PBX with 3 trunks and 12 lines equipped with RT 2B power unit. In service 6 weeks. Priced $200.00, under invoice price. Elmore-Coosa Tel. Co., Inc., Eclectic, Alabama.

K-100 KELLOGG Masterbuilt walnut PBX switchboard. Serial 25447 six years old 50 lines, 9 trunks, 10 cord circuits. Over $400.00 in parts included to add 5 additional cord circuits. Best offer gets it, fob: Electra Telephone Co., Electra, Texas.

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JACK STRIPS

350 strips	Stromberg-Carlson #127 on 90 Mtg.	(20 per)	(NEW)
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200 strips	Stromberg-Carlson #135 on 80 Mtg.	(10 per)	(NEW)
500 strips	Stromberg-Carlson #130 an 99 Mtg.	(10 per)	(RECOND.)

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3000 each	Caps, Lamp - S.C. #29-D White	(NEW)
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3000 each	Lamps, Switchboard, S.C. #24-B-2 (Sylvania)	(NEW)
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FOR SALE — Four position AE Toll Switchboard; one 2-position section with five panels; two single position sections with three panels each. Equipped with 10 and 20 per strip jacks and 10 cord circuits in each position. Write or call collect: J. J. Edgerley, General Telephone, 501 Tecumseh, Fort Wayne, Indiana. Phone: E-9611.

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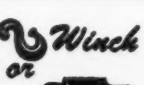

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NEWS AND VIEWS OF INDEPENDENT TELEPHONY

VOLUME 9, NO. 12 Published by the Telecommunication Division of General Dynamics|Electronics MARCH, 1961

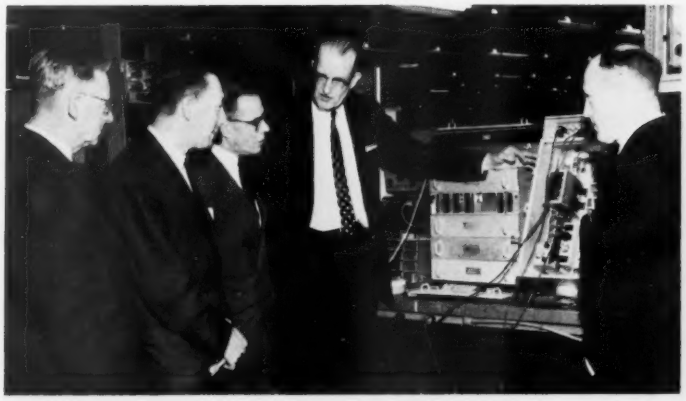
Some time in 1962 it is expected that an experimental, electronically switched central office will be activated at the Highgate Wood exchange of the British Post Office (which operates all public telephone service in the British Isles). Four leading engineers — three from the Post Office and one from a telephone manufacturing company — were in this country for the A.I.E.E. Winter General Meeting in New York; two presented papers descriptive of the Highgate Wood experiment.

It was only natural that their itinerary would be extended to include a visit at Morris, Illinois, the Bell Laboratories in New Jersey, and the Telecommunication Division of General Dynamics|Electronics* at Rochester, for they wanted to observe the methods used in carrying theoretical electronic switching concepts into the hardware stage.

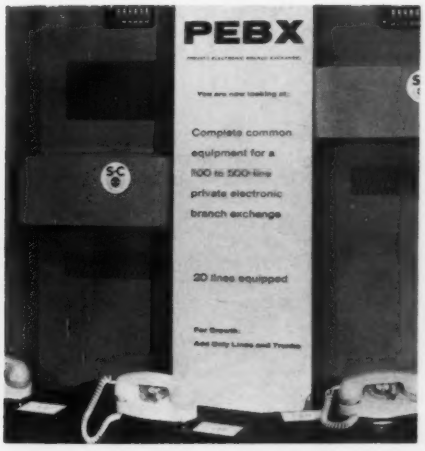
Mr. C. E. Calveley, group leader, is assistant engineer-in-chief of the British Post Office; T. H. Flowers is head of the switching division of the Research Branch, B.P.O.; J. E. Lawrence is with the electronic switching division development branch, B.P.O. Mr. G. Forshaw is head of electronic switching development for one of the manufacturers, A. T. & E. Company Ltd. Messrs. Flowers and Forshaw were the men reading papers at the A.I.E.E. meeting. Late last fall these same men had been panelists at an I.E.E. conference in London, where Mr. J. Gordon Pearce had been invited to present a paper on the Stromberg-Carlson electronic telephone system delivered to the U. S. Army Signal Corps early in 1960.

The name Stromberg-Carlson® is firmly associated with an advanced position in electronic switching for the telephone industry. The same leadership, name, quality of product and service continue unchanged, as the designation for the organization becomes Telecommunication Division, General Dynamics|Electronics. Implicit in the new name is an expanded use of electronics, accelerating a pattern that began with carrier, repeaters and microwave, and now promises similar advantages when a commercial electronic telephone system takes its place among Stromberg-Carlson products.

Interest in electronic switching draws British engineers to General Dynamics | Electronics



Roy Jones, staff assistant to the Chief Engineer, Telecommunication Division — General Dynamics|Electronics, points out a feature of Stromberg-Carlson 561 Subscriber Carrier to British engineers. Visitors were in Rochester to discuss electronic switching.



DYNALOGIC at 1960 U.S.I.T.A.

*General Dynamics|Electronics is a division of General Dynamics Corporation

The Inter-Mountain Telephone Company of Bristol has many good sized XY®-PBX installations as well as XY Dial central offices in the Tennessee-Virginia area. The young lady at the attendant's cabinet of the dial PBX at the Kingsport Press is nominated by service personnel as "Miss PBX."

Two-line switching, or 1000-line full PBX

A Stromberg-Carlson system for every need

Chesaning, Michigan, is not a large town, but manager Victor Shapley provides "big city" service. Roycraft Coach Company has one of three F-40's in town; several 6K systems serve smaller business operations.

Operator assistance on calls, a good share of them toll, led to the choice of a No. 120 manual PBX for Maple Crest turkey hatchery at Wellman, Iowa. Handsome switchboard is seen by all visitors, as operator is also receptionist.

Some commercial subscribers are unaware of the many types of business telephone systems available today. They would like timesaving features to help run their businesses more efficiently, but they are not telephone men and so are not in a good position to know which system is best for their operation. They look to you — the phone company manager — for advice.

In most cases they expect you to contact them when a new or better system can give them improved service.

Other subscribers are confused by the wide assortment of "communication aids" being advertised, some made by manufacturers with no experience in the telephone business and no knowledge of the particular problems of our industry. These perplexed customers may approach you with suggestions, and their requests must

PBX service to suit the subscriber's need: 2-line switching in Custom Woodworking Shop at Howard City, Michigan; No. 120 manual PBX at elegant Redwood Motel in Jefferson, Iowa; an F-40 Dial PBX serving Green Giant cannery at Blue Earth, Minnesota.

The many faces of commercial telephone service visited by your vacationing reporter. (Left to right, top row) Radison, Wisconsin: lumber mill in region where Paul Bunyan stories originated; Hanska, Minnesota: bank rivals telephone company in giving new face to this traditionally Norwegian town; Phillips, Wisconsin: New forms, new uses for wood products bring steady income through year-round employment in this vacation center. (Lower row) Badger, Iowa: View from silo-type grain elevator of the Quonset and "Butler" storage bins for grain — the blessing and the curse of our fertile prairie states; New London, Iowa: a commercial manager, Elmer Watson of Iowa-Illinois Telephone Co., puts an order in contract form; Boscobel, Wisconsin: one of the hundreds of new schools where PBX service is now written into building specifications — after advice from phone company.

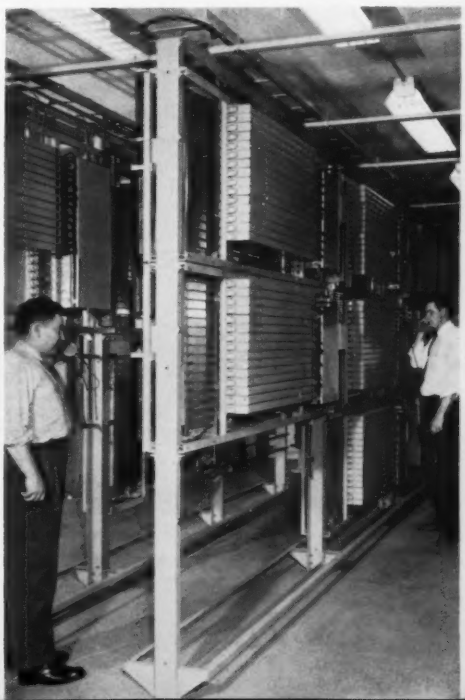
be handled tactfully but firmly — in line with the telephone-type service you are prepared to render.

Stromberg-Carlson PBX systems help you serve both these types of subscribers. First, there is a full line of business-telephone equipment offering every degree of modern service, for the small establishment with a need for 2-line switching as well as largest industry, business or university; second, the Stromberg-Carlson systems were designed through closest association with telephone operating people during 67 years as a leading manufacturer for the telephone industry.

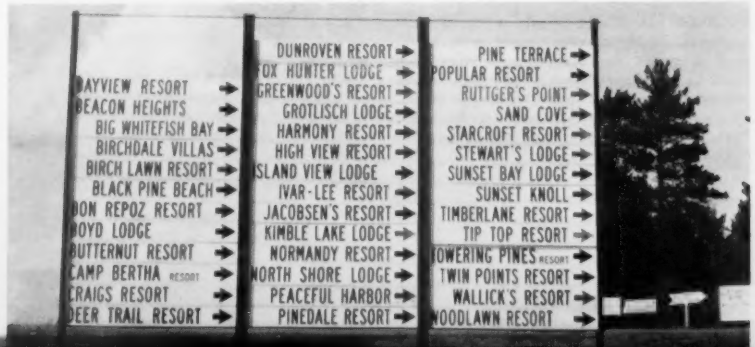
Many of these systems can be ordered for delivery from stock in various line capacities. All are so engineered as to minimize delivery time even when the system is made up to customer specification. And all business telephones can be offered in a choice of decorator colors as well as gray or black.

If you have not yet received your PBX promotion kit, created to make it easier for you to advise your business customers, contact your Stromberg-Carlson representative or the Branch Office serving you.

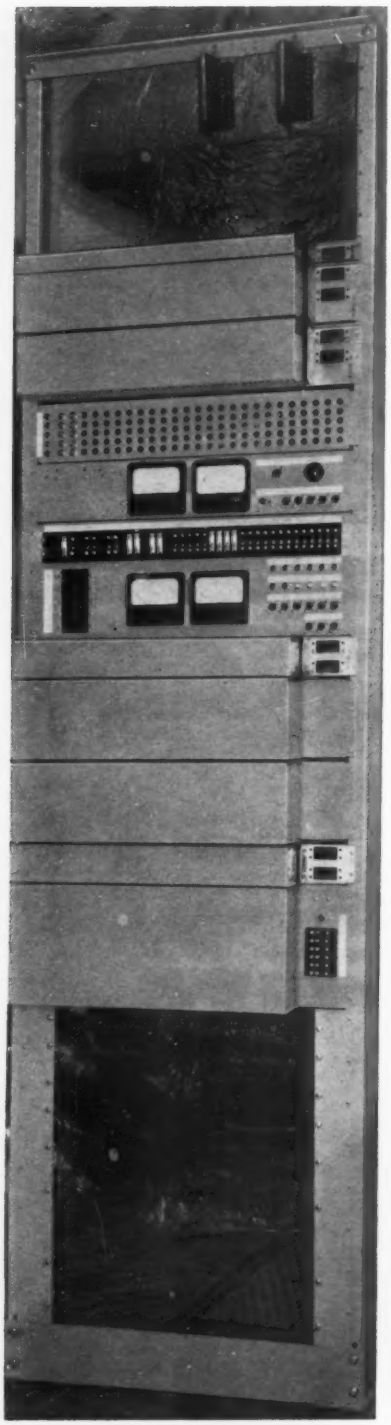
XY-PBX, expandable without limit, provides 24-hour dial service to University of Rochester — an exchange larger than the average Independent C. D. O.



The Pequot Lakes region in northern Minnesota is becoming first choice of vacationers from half a dozen states. The Arvig Telephone Co., serving these resorts, has found Stromberg-Carlson negative impedance repeaters a "natural" for improving transmission on long leads.



Compact new power board offered for smaller-size dial offices



Rapid expansion of Independent telephone service into rural areas has spurred our engineers to produce a power board specifically for smaller telephone offices.

The board, called the PB-150, is a compact version of the familiar Stromberg-Carlson power unit. Although not as large, the new board retains the flexibility and features of the standard model while meeting the economic requirements of the small-size office.

The PB-150 features centralized mounting of alarm lamps, control keys, distribution fuses, ammeter and voltmeter, permitting the status of the equipment to be determined at a glance.

All circuit plates and panels of the board are mounted on one standard 27½-inch-wide relay rack, 9 feet high. Primary and stand-by ringing machines can also be mounted on this rack, providing a valuable saving of space. Provision is made for any combination of ringing machines, including static, transistorized, electronic, or vibrator converter.

The board is arranged to serve offices requiring one ring, terminal per station; or one ring, terminal per line; or one and two ring, terminal per line. Several discharge capacities are available to meet individual office requirements. Single or duplicate tone generators will be supplied with the unit as desired.

Optional features of the PB-150 include generator marking alarm, intercept tone and frequency indicator.

We will continue to make the standard power board, which is ideal for larger offices.

All circuit plates and panels of PB-150 are mounted on one standard relay rack. Provision is made for mounting primary and stand-by ringing machines on the rack, saving valuable floor space. The new power board, designed specifically for small telephone offices, retains the features of the Stromberg-Carlson standard model.

New installations give XY® Dial to 40,000

Independent operating companies across the country continued their fast conversion rates in the months of October and November. Below are some of the offices where XY Dial was installed during these months. Total number of lines installed in these offices exceeds 16,555 lines. This means modern dial service for more than 40,000 subscribers in 19 states.

Texas
- Austonio
- Crockett
- Grapeland
- Kaufman
- Kennard
- Lovelady

Missouri
- Fairview
- Ferrelview
- Hardin
- Montrose
- Salem

New York
- Brookfield
- East Pembroke
- Williamstown

Oklahoma
- Achille
- Yuba

Alabama
- Langdale
- Pennington

Ohio
- Coolville

Indiana
- Portland
- Sweetser
- Wawaka

Pennsylvania
- Mercersburg
- Schellsburg

Minnesota
- Dexter
- Hill City
- Madison

Arkansas
- Bearden
- Caraway
- Lamar
- Lewisville
- London
- Ratcliff

Illinois
- Brownstown
- Rosiclare
- Shobonier

Mississippi
- Florence

Iowa
- Alpha
- Plymouth
- Waucoma

Georgia
- Nicholls

Kansas
- Baldwin
- Dexter
- Ensign
- Kincaid
- Osborne

Maine
- West Ripley

South Dakota
- Chester
- Wentworth

Wisconsin
- Monticello

Michigan
- Cambria

Automatic stepping circuit makes equipment routining simple task

Did you know that there is a Stromberg-Carlson system that will routine your central office equipment without manual attention?

The system, which eliminates the tedious job of manual routining, is controlled by an automatic stepping circuit permanently mounted in your exchange. A portable equipment routiner and pulse generating set are the other major components of the system.

Companies with more than one exchange will find that the portability of the equipment routiner and the pulse generator is a great asset. By placing an automatic stepping circuit in each office, the offices can be routined automatically by moving the routiner and pulse generator from one to another.

The automatic stepping circuit is composed of three XY Universal Switches and associated control panels. These switches will attach any line circuit group and any connector number group to the routiner. The automatic stepping of these switches will rotate the connection of the routiner between all line circuit groups and all connector number groups.

This versatile circuit can be used to test the equipment between one particular line circuit and particular connector number as well as automatically testing office equipment between all line groups and all connector number groups. This is done by manually operating a key which will step the switches to any desired position. Lamps indicate the position of the switches as they are being stepped.

The system may be set up in any central office using directory numbers of seven digits or less. Pulses are sent out through the line circuit to a predetermined connector terminal, via the switch train. These pulses take the true route of the call, including the cabling between ranks of switches. The routiner automatically detects and clearly indicates any faults encountered in the dial switch train.

When a fault is detected, a visual and an audible alarm are triggered, indicating the type and location of the fault. Among the faults tested for by the system are: switch-through failure; release failure; sleeve ground failure; and failure to find connector terminal.

Stromberg-Carlson automatic stepping circuit is checked over by company engineers. A portable equipment routiner, shown near center of photo, and pulse generating set are major components of the system.

Eyer marks 45th year, Strassner 40th, of telephone service

Howard G. Strassner
40 years of service

Howard Strassner, manager of manufacturing, and Edward Eyer, national sales engineering, who have a combined total of 85 years' service in telephony, recently celebrated anniversaries at Rochester, N. Y.

Mr. Strassner started his work at Stromberg-Carlson in 1921. He rose through the ranks to material control manager and later production control manager. He was named production manager in 1949 and manager of manufacturing in 1958.

Mr. Eyer joined the company in 1916 in the blueprint room. After periods in drafting and installation, he was transferred to his national sales engineering post.

Edward D. Eyer
In telephony 45 years

Bored with "Number, please"? —try shooting off a couple of rockets

Female employees of Gulf Telephone Company practice correct use of firearms regularly. Here Verla Porter, Louise Williams, and Pearl Arant (left to right), check out the weapons. Special permits are required for the firearms.

The work week of the average switchboard operator rarely includes launching two-stage rockets from the back of telephone company trucks. In Foley, Alabama, however, blasting off a weekly rocket or two is par for the course.

Rockets, pistols, rifles, and various other firearms compose part of a unique civil defense activity adopted by the Gulf Telephone Company in Foley. Female employees, thoroughly trained in installing telephone poles and driving trucks, avidly support the program.

John Snook, vice-president and general manager of Gulf Telephone, is the driving force behind the unusual approach to national security. A strong believer in an alert civil defense plan as well as good telephone service, Mr. Snook has developed a highly trained corps of defense workers.

The women (they number 23 as compared to 17 male employees) find the rigorous schedule to their liking. They hold down regular jobs with the company as operators or office workers. But each is taught to handle all phases of the telephone work, except those jobs requiring heavy lifting or specialized electronic knowledge.

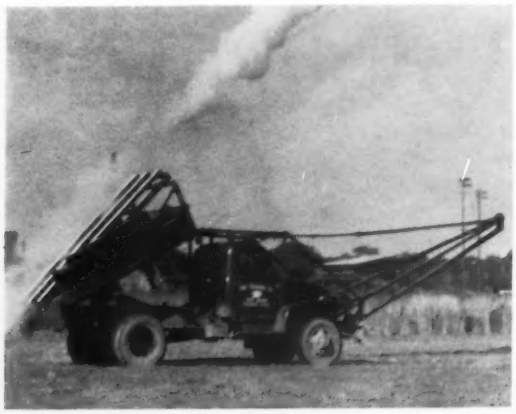
Training in the use of firearms and rockets is periodic, depending on work schedules. But every effort is made to see that this part of the training is not neglected.

John Snook's success with the civil defense program is no surprise. Along with his father, Ward Snook, he has supervised the activity of Gulf Telephone Company, one of Alabama's most progressive Independents.

The company serves 3400 subscribers in southeast Alabama. All of the eight Gulf Telephone exchanges are served by XY Dial equipment. Foley, the headquarters, is also a toll center.

Plans call for all exchange buildings to receive structural additions which will offer protection in the event of enemy attack. At Loxley, these additions are nearly completed. Tall trees are being planted around the exchange building as added protection against radioactive dust particles.

In his civil defense program, as in his telephone business, Mr. Snook has thought out all the details. That's probably the major reason for the success of both operations.



A two-stage rocket blasts off from launching racks on a Gulf Tel truck during rocket demonstration by employees. The rockets are made by the employees, as are the racks, which are removed from the truck during ordinary working operations.

Transmitter
GEORGE B. FORBES, Editor
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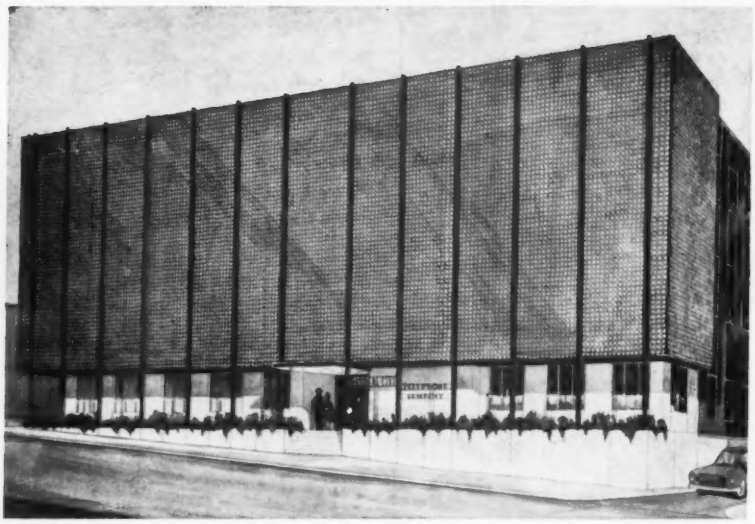

$569,723 addition to central office building of Capital City Telephone Co., Jefferson City, Mo., more than doubles size of present building and its equipment capacity. Capital City Tel., largest single exchange telephone company in U.S.A., observed its 60th Anniversary in 1960. The company has 62 employes and serves over 11,000 customers in Jefferson City and surrounding area with 17,272 telephones. In 1960 the company gained 842 telephones, completed 24,710,960 local calls and 633,737 toll calls.

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

Busy Year For Capital City Tel. Co.

IN 1950 when Foster McHenry's Capital City Telephone Co., the largest single exchange company in the U. S. A., — observed its 50th year of service, one of the highlights was the cutover of the Jefferson City, Mo., exchange to dial operation, and the inauguration of "Inter-Toll" dialing from Jefferson City to Kansas City, Mo., and other individual points.

At the end of its 50th year of service in 1950 Capital City Tel. operated 11,016 telephones, and during 1950 it handled 20,352,802 local calls and 472,727 toll calls in Jefferson City and the surrounding vicinity.

This progress caused former USITA President McHenry to report that 1950 was a "successful year for Capital City Tel."

However a report issued last month by Mr. McHenry, stated Capital City Tel. observed its 60th anniversary in 1960 by establishing some new all-time records: it gained 842 telephones, raising its number of telephones in service to 17,272, handled 24,710,960 local calls and completed 633,737 toll calls.

From December 31, 1949 to December 31, 1960 Capital City Tel. increased its plant investment 284%, and to meet the continuing growth, expansion, and improvement of communication facilities in the Jefferson City area, the company started a new addition to its central office building that will cost approximately $569,723.

New Film On Independent Industry

LAST month the Advertising Committee of the United States Independent Telephone Association (USITA) approved plans to proceed with the production and distribution of a film illustrating the importance of the nation's 3,560 Independent telephone companies to the nation's communications system.

The film, to be produced by Parthenon Pictures, Hollywood, Calif., will cost $25,000. It will be photographed in 16 mm color, and will be shown for the first time at USITA's 1961 Convention.

USITA Advertising Committee Chairman, Hugh S. Barnhart, Rochester, Ind., states that the film will emphasize the importance of the Independent telephone industry, and that the committee plans to make prints available to all USITA member companies on a rental basis.

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For samples and details on conduit made of MARLEX high density plastic . . . see your electrical material supplier . . . or contact us.

*MARLEX is a trademark for Phillips family of olefin polymers.

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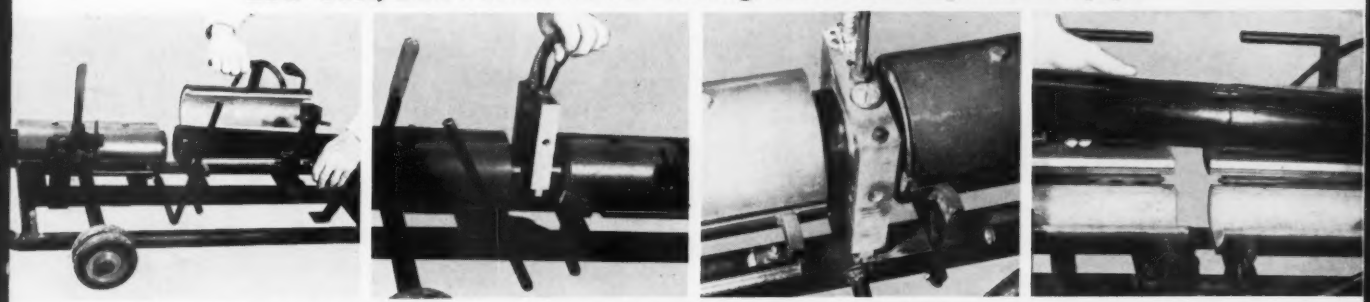

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THE NEW POTENTIALS OF DIRECTORY REVENUE

Take a man like

Dick Gossett

Dick is one of our "Revenue Men" in San Francisco, California.

You'll find Dick Gossett a straightforward, hardworking man with plenty of experience packed into his 36 years. The instant you meet him, you'll know he's the kind you can count on for a job well done.

Like most young men getting out of school in the early 1940's, Dick's first job was already cut out for him. He joined the U. S. Navy in 1943, and served three years as a radioman on our ships at sea.

It was in 1954 that Dick joined General Telephone Directory Company as a Local Sales Representative in a unit of our Long Beach Division. He was promoted to a Unit Sales Supervisor in our San Francisco Division during 1959.

The Gossett family numbers four: Dick, his wife Marjorie, and their two daughters, Janet, 8, and Sheri, 6. Two of Dick's main outside interests are turning out some mean carpentry work, and turning in some mean golf scores (mid-eighties bracket).

Dick is typical of the "Revenue Men" who work for General Telephone Directory Company and for you. And they all have one thing in common—they are an asset to any community in which they live.

Are you keeping pace with the trend of increased directory revenue? The potential is enormous. You can't afford *not* to keep pace.

The revenue you earn from a well-sold, well-published directory can give you the highest net profit of any service you sell. Little or no expense is charged against it. And directory profits can make a hefty contribution to total net earnings.

Our "Revenue Men" are trained to help you exploit the rich potential of directory revenue. Backed by our Complete Directory Service Plan, they work with market-tested procedures to tap every source of revenue: local, regional and national.

May we show you a plan tailored to fit your needs? No obligation, of course. Just call or write.

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Boulevard
Des Plaines, Illinois
VAnderbilt 7-6111

DIVISION OFFICES:

Bloomington, Illinois • Columbia, Mo. • Durham, N.C. • Erie, Pa. Fort Wayne, Ind. • Honolulu, H. I. • Lexington, Ky. • Long Beach, Calif. Madison, Wis. • Manila, P. I. • Muskegon, Mich. • St. Paul, Minn. San Angelo, Tex. • San Francisco, Calif. • Spokane, Wash. St. Petersburg, Fla.